FLIGHT
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May 30 .... Wilbur Wright Lecture "The Slotted Wing." Mr. F. Handley Page, before R.Ae.S. and Inst.Ae.E.
June 3-9 R.A.F. Rifle Association Prize Meeting
June 7 .... 7th Annual Middle East Dinner
June 8 .... Banquet to Mr. A. V. Roe at Savoy Hotel
June 9 .... Light 'Plane Meeting, Castle Bromwich
June 9-10 Aero Golfing Soc.—Team Match v. R.A.F.
June 20 .... Aero Golfing Soc.—Team Match v. Porters Park G.C.
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June 29—
July 15 Paris Aeronautical Salon

EDITORIAL COMMENT

WHATEVER other flights may yet be made, and whether or not the North Pole is reached, the 67 hours' cruise of Signor Nobile's airship " Italia " last week in the Polar regions should put heart into the champions of the semi-rigid airship. A vessel which can cruise around in very unfavourable conditions and return safely to a base which is not, it may be assumed, all that a base in more temperate climates would be, must have a very considerable number of uses in more " civilised " regions. Not that we would for one moment criticise Signor Nobile's use of the " Italia " for Polar exploration. Far from it. As a matter of fact, no other vehicle known could have done what the " Italia " did in anything like the same time. What we mean is that if a semi-rigid airship can withstand the necessarily rough usage which operating from an Arctic base entails, then it should have very many spheres of utility in other directions.

Good for the Semi-rigid

The airship is the long-distance aircraft *par excellence*, and a duration of 67 hours, which probably does not in any case represent the maximum of which the " Italia " is capable, is enough to be of practical utility even if it does not approach the range which it is hoped to attain with the new rigid airships now being built. In other words, if airships are proved to be practical propositions, the semi-rigid type should not be overlooked for use where the extreme ranges attained by the larger rigids are not required.

An Empire network of air routes is often visualised as a relatively few trunk routes operated by rigid airships, and with heavier-than-air machines operating " feeder lines." While there is little doubt that in a general way this is a very sound scheme, there is quite a possibility that some of the longer " feeder lines," or, conversely, some of the shorter of the main " trunk lines," could with advantage be operated with semi-rigids.

From what little can be gathered at this stage, the " Italia " has had some pretty rough treatment,

not only in the Arctic but also *en route* there, but whatever damage was done has evidently been of a nature that was amenable to local repairs. This fact would seem to argue that in some ways the semi-rigid type may be perhaps rather less fragile than the rigid, depending for its strength rather less upon a structural framework than upon the flexible fabric envelope. The latter may be torn, but can be patched up again very readily "in the field." It appears that on more than one occasion the "Italia" has "bumped" her engine cars, etc., rather heavily. Owing to the fact that the keel girder is a relatively shallow structure and somewhat flexible, and to the fact that the weight of material above this keel is probably insignificant, no serious damage resulted. It seems likely that a rigid might, under similar conditions, have sustained more severe damage.

We do not for a moment suggest that there should be any slacking off in our rigid airship programme. On the contrary, let us go ahead and find out all we can. But it does appear advisable not to overlook any claims to recognition which the semi-rigid type may have. Do not let us forget that already Signor Nobile has crossed the Polar regions in another semi-rigid, the "Norge," and that although he and his companions had to dismantle the ship before reaching civilisation, the ship *was* dismantled and sent home. In this fact alone there is food for thought.

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"Brighter Flying"

"Why don't you people liven things up a bit at your flying meetings?—something after the style of dirt-track motor-cycle racing." The young man who sauntered into our offices with these remarks was a mere casual onlooker at the game, and did not claim to be an expert. He was merely voicing a general dissatisfaction with the "tameness" of the average flying meeting. Air races, he argued, are all very well, but unless the machines are in sight throughout the course the thing soon loses interest. "Aerobatics" are always interesting, but a certain sameness is bound to be present. "Crazy-flying" has a strong appeal, but requires rather specialised flying and pilots such as Fogarty and Noakes. At the Bristol meeting Sqdn.-Ldr. England gave an exhibition of "How *not* to fly." Well, our young friend argued, why not try to combine aerobatics, "crazy-flying" and racing in such a manner as to get the same intense excitement as in dirt-track motor-cycle racing?

By this time we were beginning to fidget, and on the point of telling our visitor to go home and learn something about flying first. But he was obviously keenly interested and willing to pass on his views. Would it not, he continued, be possible to get up a new form of race, in which a limited number of competitors take off, climb as rapidly as possible to 1,000 ft. (as proved by a recording barograph), do three loops, three rolls and three spins, descend nearly to aerodrome level again, and then race around a course on the aerodrome, alternately flying over and under obstacles in the form of balloons on a string between two poles. The obstacles would be alternately 3 ft. and 12 ft. high.

Sounds crazy, doesn't it? And yet there may be something in the idea. The number of competitors would have to be limited to a small number such as three, in order to avoid collisions. But, if that were done there should not necessarily be any great risk. England, at Bristol, certainly flew in a most amazing fashion, although his obstacles were "imaginary." Balloons on a light string stretched taut between poles would cause no damage to the machine even if struck, and would not tip it up. The width would have to be sufficient for the competitors to fly side by side, should all three arrive simultaneously.

At any rate, our enthusiastic friend may start a train of thought which, if it does not follow his suggestions in detail, may at least lead to "brighter flying."

◈ ◈

A Reminder

THE second Hampshire Air Pageant will take place next Monday, May 28. The Royal Air Force is co-operating by sending a flight of single-seater Gloster "Gamecocks," and an Avro "Bison" and Fairey "Flycatcher" will engage in combat. Other service machines present will be Blackburn torpedo 'planes and reconnaissance 'planes. Flight-Lieut. A. C. Collier will give a display of stunting, Sqdn.-Leader J. Noakes crazy-flying, and Senor Don Juan de la Cierva will fly his Autogiro. Flight-Lieut. Rawson, Flight-Lieut. F. Luxmoore, Sqdn.-Leader C. N. Lowe, Capt. Broad, Lady Heath and Capt. Brown are a few of the other pilots who will participate. Four handicap races are in the events. Machines will be in sight all the time as a short course will be flown in several laps. One hundred machines are expected, including an Imperial Airways liner. Catering and travel facilities have been well arranged for the public. The first event begins at 2.15 p.m. Monday, May 28. Lord Montagu of Beaulieu will act as judge, and Sir Sefton Brancker will be a steward.

Sir Charles Bright

THE Fellowship of the Institute of Patentees has been conferred on Sir Charles Bright, F.R.S.E., M.Inst.C.E., M.I.E.E., F.S.S.

Aircraft in Tank "War"

THEIR MAJESTIES THE KING AND QUEEN visited Tidworth on May 18 to view tank warfare in which Royal Air Force squadrons co-operated. The "enemy" was reported by aircraft, and when located No. 3 Fighter Squadron swooped down to attack a wood.

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Anniversary of Last Air Raid

MEMBERS of the London Air Defence Area dined at the May Fair Hotel on May 18 to celebrate the anniversary of the last air raid on London. Maj.-Gen. E. B. Ashmore was in the chair, and Air Vice-Marshal Sir Robert Brooke-Popham, Maj.-Gen. H. H. S. Knox, and Air-Marshal Sir John Salmond were among the speakers.

Twenty-one Mile Air Line

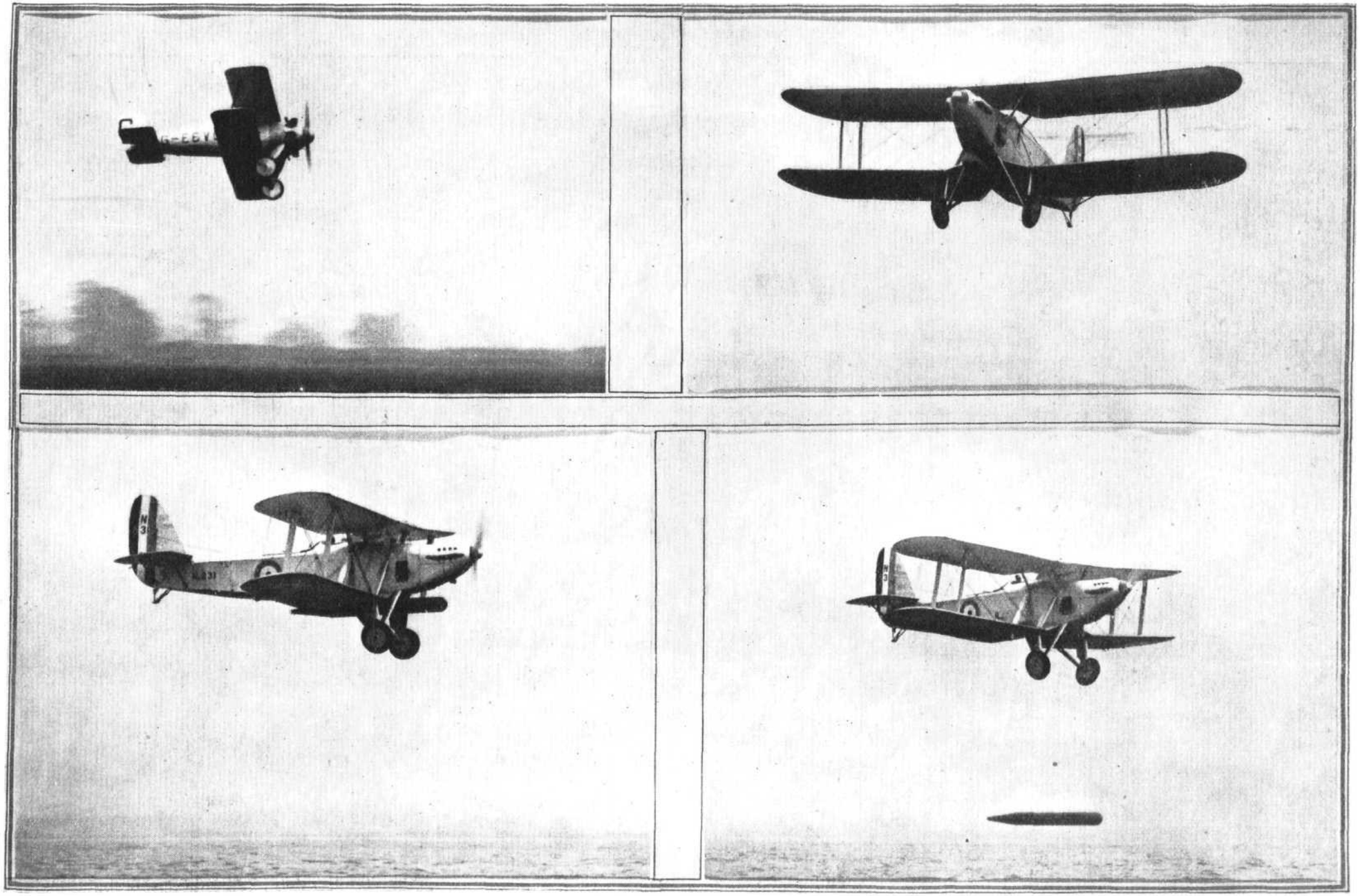
CALAIS and Dover are to be linked by an air service on and after July 15. The Compagnie Aérienne Française has been authorised to inaugurate it with seaplanes to run in conjunction with the boat trains. About four or five machines will comprise the air fleet, each carrying two or three passengers.

Air Minister's Air Holiday

SIR SAMUEL HOARE will cruise along the South Coast to the Channel Islands and the Scilly Isles during the Whitsun recess in the Short "Calcutta" flying boat. It will take two days, and he will be accompanied by Air Vice-Marshal Sir T. Higgins and his private secretary, Mr. Geoffrey Lloyd, A.R.A.F. "Southampton" flying boat will also engage in the cruise.

Ten Entries for U.S. Intercollegiate Races

So far ten colleges have entered for the Intercollegiate air races to be held at Mitchell Feild, L.I., on June 30. This competition, it will be remembered, is being sponsored by the Loening Aeronautical Corp. and the National Aeronantic Association. The ten colleges entered are Harvard, Yale, Massachusetts Inst. of Technology, Pennsylvania, Minnesota, Michigan, Georgia Tech., New York University, Richmond, and Brown.



["FLIGHT" *Photographs*

A CONTRAST: The photograph in the upper left-hand corner shows the little Blackburn "Lincock" with Armstrong-Siddeley "Lynx" engine, piloted by Sqdr.-Ldr. Jack Noakes. This is a new class of machine, known as a "light fighter." The other three photographs illustrate the Blackburn "Ripon" with Napier "Lion X" engine, after taking off, descending to near sea level, and finally dropping the torpedo. The pilot during this demonstration was Captain A. M. Blake.

Some of the distinguished visitors in front of the Blackburn " Ripon."

THE Blackburn Aeroplane Co., of Leeds and Brough, directed its sole attention to the development of torpedo-carrying aircraft after the war, with the benefit of their war-time experience as an impetus. It was their immediate success which resulted in the company's definite establishment in the industry and the scale of operations which now proceeds at Leeds and Brough. Incidentally, they turned to other spheres in aeronautical design later and won separate reputations, notably with the Blackburn " Iris " flying-boat.

Their first excursion into torpedo work dates as far back as 1916, when they produced a twin-engined seaplane fitted with 160 h.p. Sunbeam engines. It was turned into a land machine later with two 250 h.p. Rolls-Royce " Falcon " engines and called the Blackburn " Kangaroo," which will immediately make it more familiar to many of our readers to-day, and particularly to members of the R.A.F. Reserve who are attached to Brough School for their annual training. The type was never actually used for its original purpose, but it justified its production admirably on sea patrol during the submarine warfare, amongst the war stations equipped with them being Seaton Carew, on the north-east coast.

After the war the Blackburn company acquired many of them again, and they found permanent utility eventually in giving twin-engined instruction to the R.A.F. Reserve at Brough.

Later in the war the company put into production a machine called the " Cuckoo," fitted with a Sunbeam " Arab " engine and giving a speed of 90 knots and a ceiling of 14,000 ft. It was really the Sopwith bomber, which had been fitted with a 200 h.p. Hispano engine and recommended for adaptation to torpedo work. When this was done and the machine tested in 1917 the results were satisfactory, and led to a production contract, but this was passed to the Blackburn company as the Sopwith company were so busy. Repeated contracts led to improvements in the design, and the machine became the first torpedo craft to be used extensively.

In 1918 Blackburn experiments were carried out on a machine with a higher performance and carrying a heavier torpedo, fitted with a Rolls-Royce " Eagle " engine. The end of the war then intervened in the work, but in 1920 the company produced the " Swift," with special facility for deck landing besides other improvements acquired by experience. It had a Napier " Lion," carried a military load of 2,070 lbs. with 3½ hours' fuel, and had a top speed of 108 m.p.h. and a service ceiling of 11,500 ft. After it had been produced on the company's own initiative it was purchased by the Air Ministry.

Following developments, it was extensively produced as the " Dart " and became a standard service torpedo machine, whilst as the " Swift " it was modified, though still differing from the " Dart," and several foreign Governments ordered it in small numbers, including, we believe, America and Spain. It was supplied both as a seaplane and land machine. Mr. R. Kenworthy, the old Hendon pilot, and then the

["FLIGHT" *Photograph*

INTRODUCING A NEW CLASS IN FIGHTERS: The Blackburn " Lincock " with Armstrong-Siddeley " Lynx " engine is of a type known as a " light fighter." It was demonstrated during the visit to Brough by Squadron-Leader Jack Noakes, who did some amazing " crazy-flying " on it.

Blackburn test pilot, took the first " Swift " and " Dart " into the air at Brough and tested the production machines.

Sqdn.-Ldr. H. J. Payn, then attached to the Air Ministry and now with Messrs. Vickers, Ltd., tested them after Kenworthy, on behalf of the Air Ministry.

In 1924 the " Cubaroo " was the next stage in torpedo design; meanwhile, the company, turning to other aeronautical design, had produced the Blackburn " Blackburn," a three-seater reconnaissance machine which also went into production. The " Cubaroo " was a large biplane driven by the Napier 1,000 h.p. " Cub " engine; it carried a military load of 5,100 lbs. and 6½ hours' full power fuel, with tankage for 10 hours.

Flight-Lieut. Bulman, then of the Farnborough establishment and now test pilot to the Hawker Aviation Company, made the first test flight in the " Cubaroo," accompanied by the firm's chief inspector. He waited until the wind dropped and rose parallel to the Humber after three initial taxi tests, when dusk was gathering on a summer evening. He described a wide circle over the wolds ranging some distance from the river and as the large machine finally turned homeward against the broad expanse of evening sky rising where the Humber widens and merges into the rivers Ouse and Trent, the flaming exhausts became almost the only but vivid spectacle to be seen, creating a realistic picture of a machine on fire.

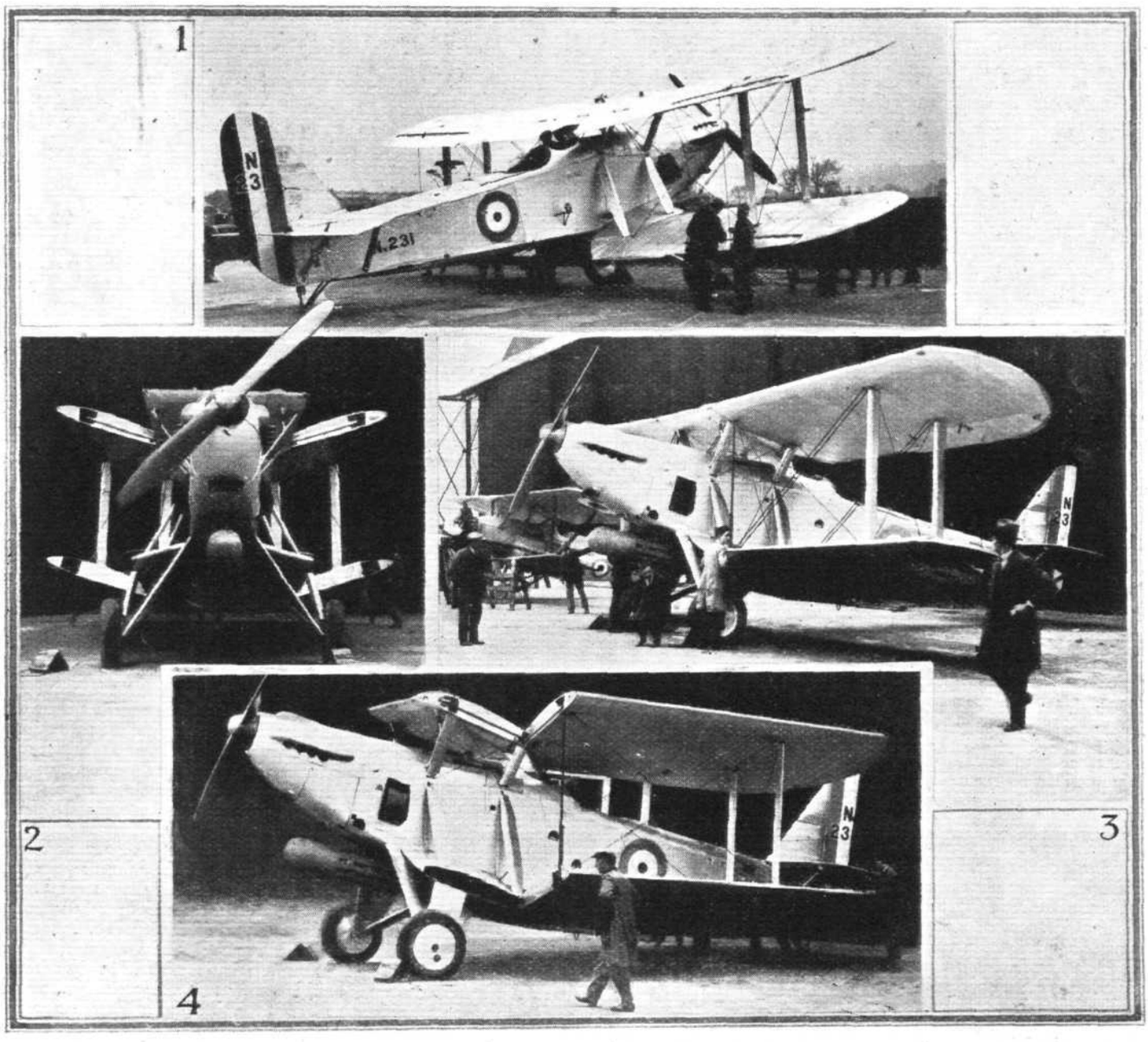
It appears, however, that torpedo machines of the " Cubaroo " size will not be reproduced owing to a change of policy concerning the size of torpedoes, and the use of land machines for long-range flight over the sea.

Subsequent progress has tended towards two-seater machines in the torpedo class in order to give them a measure of self-defence. Thus the latest product of the company is the " Ripon," a two-seater fitted with a Napier " Lion " of 500 h.p.

Maj. F. A. Bumpus, Director and Chief Designer, and his assistant designer, Mr. G. E. Petty, both of whom have designed all the Blackburn torpedo 'planes, have designed it specifically for three alternative purposes, however, the other two being for bombing and reconnaissance. In any of these capacities it is available as a land machine or seaplane; the wheel and float chassis being interchangeable. Also the land type is adaptable for work from aircraft carriers.

The maximum torpedo load it carries is 1,500 lbs., in addition to a fixed gun firing through the propeller and a movable machine gun in the rear cockpit. For bombing the torpedo load is replaced by detachable bomb racks with a bomb load approximately equal to the torpedo load. As a reconnaissance machine, it has an extra fuel capacity in place of the armament, except for the two guns. Full fuel capacity gives then six hours' flying at cruising speed.

Main characteristics are high performance, general utility

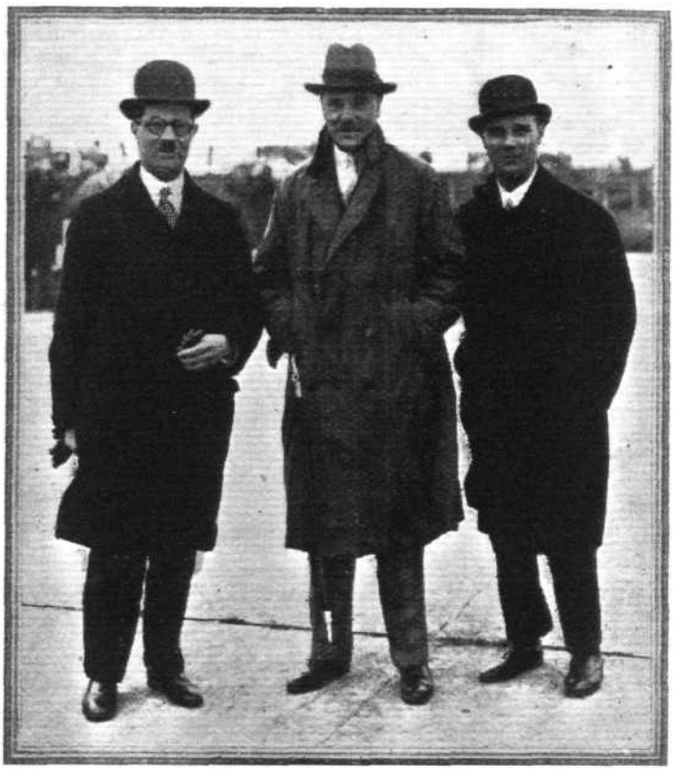


["FLIGHT" Photographs

THE BLACKBURN " RIPON " TORPEDOPLANE: Fitted with a Napier " Lion " engine, this machine carries a 1,400 lb. torpedo, the placing of which is shown in above photographs which illustrate the machine from various viewpoints, with wings folded and spread.

["FLIGHT" *Photograph*

Mr. Robert Blackburn and Mr. H. T. Vane, the men who built the "Ripon" and the Napier "Lion" respectively.



"FLIGHT" *Photograph*

Italian Representatives at Brough: Our photograph shows General R. Verduzio, Italian Air Attaché (left), and Captain P. Sbernadori (right) of the Italian Fighting Section, with Mr. C. G. H. Winter, of Napier's.

for coastal defence work and economical maintenance. Quoted flying qualities are: rapid acceleration, quick take-off and climb, slow landing speed, rapid deceleration, good manœuvrability and full control throughout speed range.

Construction is of the robust composite type, and the main structure, composed of steel tubes and machined steel fittings, is permanently true, thereby minimising maintenance. A detachable unit system employed leaves accessibility for repairs or replacements.

At Brough aerodrome on May 16 there was a demonstration of the "Ripon II" land 'plane type. Capt. A. M. Blake, the Blackburn test pilot, took off from the field adjoining the works with the machine loaded with a dummy torpedo. He flew along the Humber a few yards from the shore and released the torpedo from an altitude of about 30 ft., and then climbed steeply. This was, of course, not the first demonstration of its kind at Brough.

Besides the "Ripon," the "Velos," the "Dart" and the Blackburn "Lincock" were flown. The "Velos" is a "Dart" on floats, and it was piloted by Flying-Officer Woodhead, who is seaplane instructor at the Brough Reserve School. Flying-Officer Loton, also instructor at the school,

["FLIGHT" *Photographs*

AT THE BLACKBURN SEAPLANE BASE AT BROUGH: Col. V. Vuori, chief of the Finnish Air Force. Engineer-Lieutenant R. Berger, Colonel G. Taucher, Finnish Military Attaché, and Major S. A. vitez Beldy, Hungarian Military Attaché. On the right, distinguished Spanish visitors. From left to right: Captain Don F. Navarro, Captain Don F. Pastor, Captain R. Yzquierdo, Commander A. Roji, Captain P. Hermida, Commander B. Navarro, and Commander Montojo.

flew the old type "Dart." By arrangement with the Air Ministry, Sqdn.-Leader J. Noakes flew the "Lincock" over from Martlesham and gave a thrilling exhibition in this new single-seater fighter fitted with a 200 h.p. Armstrong-Siddeley "Lynx."

Amongst the official party who witnessed the display were Group-Capt. J. A. Chamier, C.B., G.M.G., D.S.O., O.B.E., Director of Technical Development, C. R. Brigstocke, C.B., and Air Commodore A. M. Longmore, C.B., D.S.O. Representatives of the Embassies present included:—Argentine: Commander Don Luis Pillado Ford and Lieut.-Col. Don S. A. Cesares. Finland: Lieut.-Col. G. Taucher, Col. Vuori, Maj. Hallamaa, Lieut. Berger, Lieut. Juselius. Greece: Capt. D. Papalexopoulo, C.M.G. Brazil: Senhor and Senhora Fernando Pedroza. Italy: Generale Rodolph Verduzio and Capt. P. Sbernadori. Japan: Lieut.-Commander M. Awaya, Mr. H. Nishimoto, Mr. Yamashita, Mr. Matsubara. Norway: Commander H. Dons. Spain: Commander Arsenio Roji and Capt. Don F. Navarro, Lieut.-Commander B. Navarro, Commander Yzquierdo, Commander Montojo, Commander Hermida. U.S.A.: Lieut.-Commander R. D. Kirkpatrick.

Representing the Blackburn Company were Brig.-General Festing and Mr. R. Rhodes, whilst Mr. H. T. Vane, Mr. Wilkinson, Mr. Winter and Mr. Jones were present on behalf of D. Napier & Son, Ltd.

"FLIGHT" *Photograph*

A Family Affair: Bridget, Norman and Uncle Bobby Blackburn.

["FLIGHT" *Photographs*

SOME BLACKBURN AEROPLANES "ON PARADE": Left to right, a "Cirrus-Bluebird," a "Genet-Bluebird," a "Lynx-Lincock," a "Napier" Ripon, and a "Napier-Dart."

The Next Schneider Course

IN the *Mersey Magazine* for April, issued by the Mersey Dock Board Staff's Guild, a contributor, Mr. Matthew Anderson, advances the claims of Liverpool as the next Schneider Trophy Race course. The Liverpool organisation, he says, sent a memorandum to the Royal Aero Club setting forth the accommodation for the machines that might be provided, and offering, if necessary, to raise a substantial guarantee fund towards expenses. There is apparently a broad stretch of sand between Gladstone Docks and Southport of 16 miles, where millions of spectators could view the race, and further, ample facilities on the Cheshire side of the Mersey. Seemingly, the Royal Aero Club's official inspectors were not favourable to the suggested site from the flying point of view.

One-Building Airport

M. MAURICE CHAUCHON, a French architect, has designed a novel aeroplane hangar which won a prize offered by the American Institute of Architects. It seems that the French Government are interested in the design, and possible construction will be carried out at Strasbourg and Pau. The architect adapted his idea primary to the Pau aerodrome, but it is thought that Strasbourg will erect the first hangar. The design allows for aircraft of all sizes to taxi right into the hangar and thus disembark and embark air travellers conveniently and comfortably. Waiting rooms with an elevated restaurant are also part of the structure at the rear and, with glass partitions, they will enable waiting passengers to gaze down upon the machines departing into the field. Administrative officers, adequate for a busy airport, are accommodated at the sides. The frontage of the hangar is 120 metres and depth 50 metres, whilst, as a concrete structure it is estimated to cost 55,000,000 francs. Clearly the simple and fundamental idea of the architect is to have one building meeting all requirements of an airport, instead of several. His proposals cover maximum and minimum estimates to accord with the size of hangar desired. The prize won by M. Chauchon was offered to enable the victor to visit America, and he is availing himself of the opportunity especially to study landing grounds and with the hopes of interesting flying circles in his hangar. In appearance the hangar is a great arch with the glass partitions of the restaurant and waiting rooms at the back and offices ranging down the sides.

Curtiss Marine Trophy

AT a speed of 157·60 m.p.h., Maj. C. A. Lutz, U.S. Marines, commander at the Quantico flying field, Virginia, won the Curtiss Marine Trophy race for seaplanes, on May 19. Lieut.-Com. Miles, U.S. Navy, was second with a speed of 154·10 m.p.h.; Capt. Major, Marines, was third; speed 151·72 m.p.h. All three pilots flew Curtiss "Hawk" pontoon seaplanes.

Amphibian Air Services at Los Angeles

THIS summer will see two amphibian air services operating between Los Angeles and Catalina Island, one, commencing on June 1, with Sikorsky machines run by Pacific Marine Airways, and the other, operated by Western Air Express, starting on July 1—the type of machine to be used is not announced.

THE GLOSTER "GORING"

A Long-Distance Bomber Available as Landplane or Seaplane

DESIGNED originally as an aeroplane long-distance bomber, the Gloster "Goring" has more recently been fitted with a twin-float undercarriage and tested as a seaplane. The results have been particularly satisfactory, so that there is now available to any nation requiring a high-performance long-range two-seater a machine of very considerable merits. Both the landplane and the seaplane versions are fitted with "clean" appearance, which shows unmistakable traces of the Gloster company's experience in the design and construction of racing aircraft. For instance, the down-swept lower wing roots, thickened up and faired into the fuselage, are strongly reminiscent of those of the "Gloster IV," although less pronounced. The single-bay biplane arrangement also is instrumental in reducing drag, as are the petrol

The Gloster "Goring" as a Seaplane: Side view of the machine on the beach. Note the bombs suspended under the bottom plane.

["FLIGHT" *Photograph*

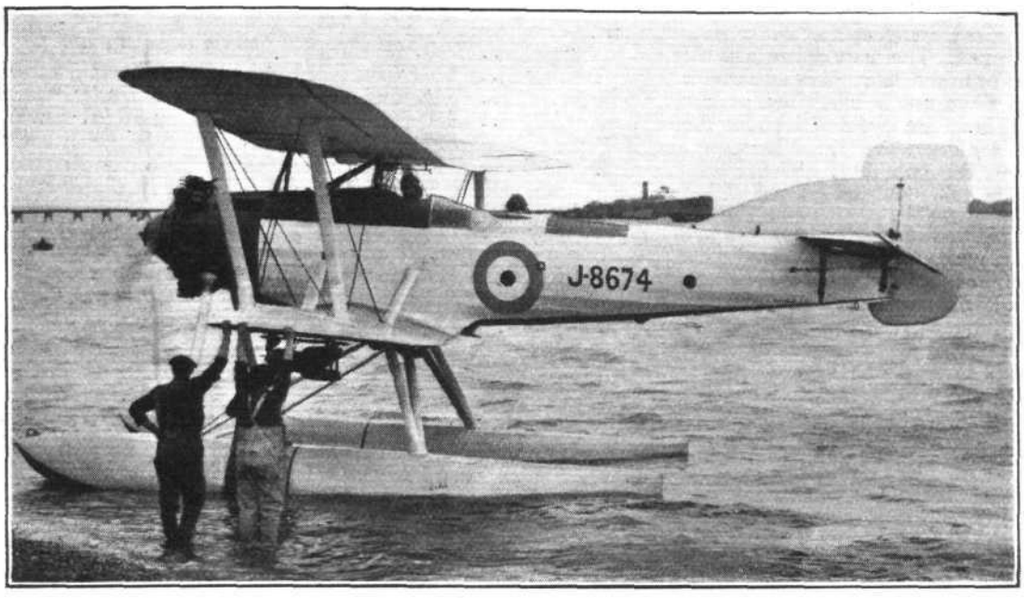
the Bristol "Jupiter" engine. In this connection, however, it should be pointed out that although the photographs of the machine in its two forms show a "Jupiter VI," the machine was originally designed for the geared "Jupiter VIII" and the performance figures given at the end of these notes relate to the machine fitted with the geared engine.

Aerodynamically the "Goring" is characterised by its tanks let in flush with the wing surface of the top plane. The fuselage itself is of good shape and projections have been kept down to a minimum. For the rest, the "Goring" is of fairly normal British design, with the exception, perhaps, of the wing section used, which is a modified Joukowsky aerofoil of fairly deep camber giving a high maximum lift.

Constructionally the "Goring" is a straightforward

["FLIGHT" *Photograph*

THE GLOSTER "GORING" AS A LANDPLANE: The single-bay bracing, down-curving wing roots, streamline "nose" and general "cleanness" bear testimony to Gloster racing experience applied to service types. The engine is a Bristol "Jupiter.



The Gloster "Goring" about to go out for a flight over Southampton Water.

["FLIGHT" *Photograph*

structure, built in the main of wood with metal fittings, but designs are now in hand for producing the machine in all-metal construction, should potential purchasers desire this to be incorporated.

Reference has already been made to the down-curved lower wing roots. While doubtless these have an aerodynamic advantage, they also have their practical utility. Thus an inspection of our photographs will indicate that to the outer ends of these wing roots are attached the struts of the undercarriage, the loads being transmitted to the fuselage structure by short sloping struts. The attachment so far outboard of the undercarriage struts has the advantage that the angle of the struts is very small, although the wheel track is wide.

At present the undercarriage is of the axle type, but we believe that should it be desired to convert the machine into a light torpedoplane, a split type of undercarriage could be fitted. Obviously the machine would not be able to carry a very large torpedo, but by reducing the amount of fuel carried, and adding the load thus made available to the bomb load already provided (690 lb.), quite a respectable torpedo might take the place of the present bomb load, especially as the low landing speed would appear to indicate that the machine could be considerably overloaded without putting up the landing speed to a prohibitive figure.

Another advantage of the undercarriage attachment adopted in the "Goring" is that the lift wires can be, and in fact are, anchored to the outer ends of the wing roots, thus placing them at a better angle and thereby reducing the compression loads in the top spars. In the case of the seaplane version, an additional pair of struts is attached forward to the engine bulkhead. The floats are of all-Duralumin construction, and are similar in design to those used on the "Gloster IV" Schneider machine. They are, it is almost superfluous to state, anodically treated to resist corrosion.

As already mentioned, the petrol tanks are housed in the top plane, one on each side and some little distance out from the centre. Thus direct gravity feed is employed, while the distance from tanks to engine is so considerable as to reduce greatly any risk of fire in the case of a crash.

The pilot's cockpit is the forward one, and as the top of the fuselage slopes down towards the engine, the forward view is very good. The cut-out trailing edge gives an upward view, while the gunner is placed so far aft that he is clear of the wings, and has a good view in all directions. Although not of

["FLIGHT" *Photograph*

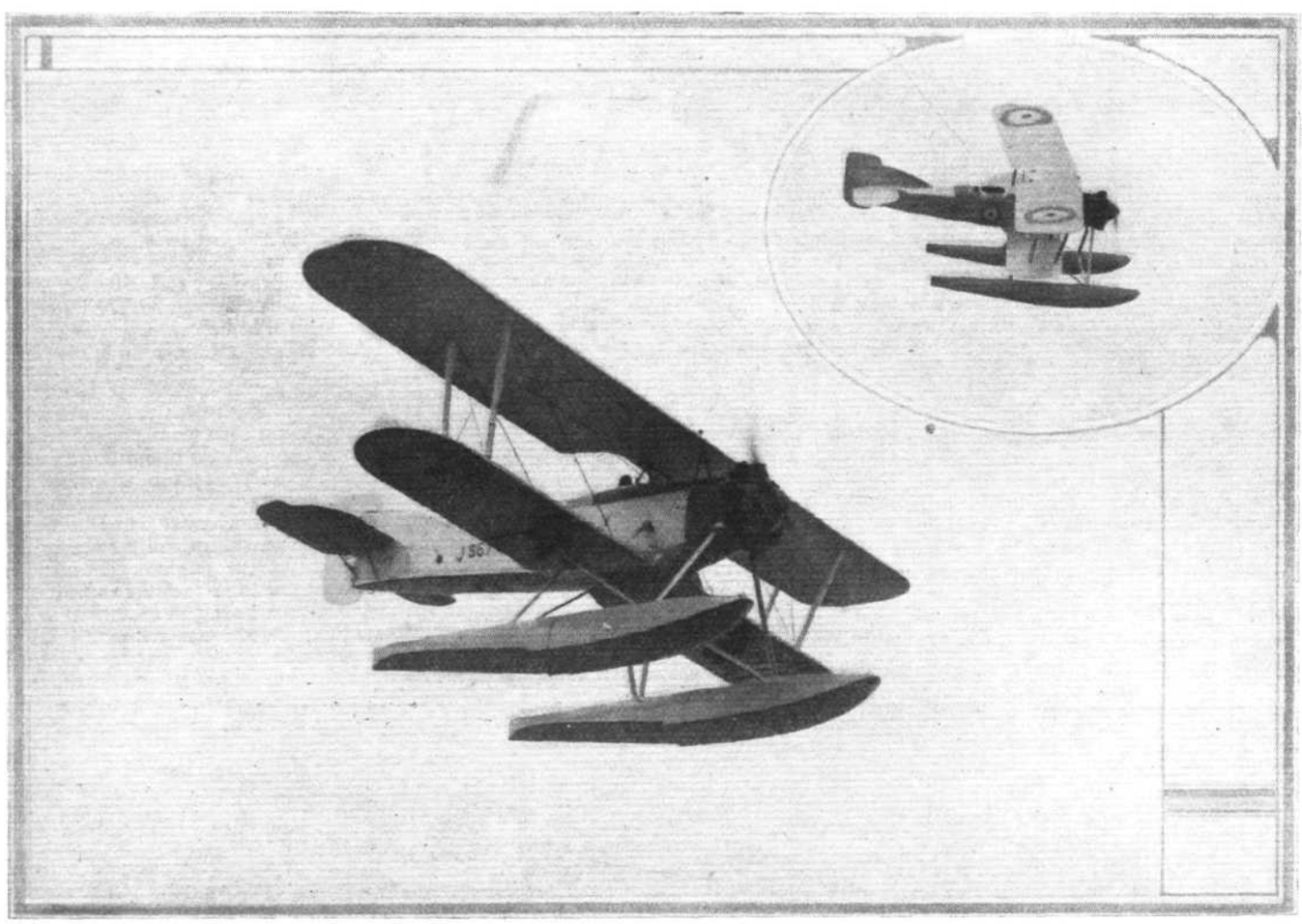
OFF FOR FULL-LOAD TRIALS: The Gloster "Goring" taxying out for a start. In this and the other photographs the machine is shown with Bristol "Jupiter VI." Actually it was designed for, and can be obtained fitted with, the "Jupiter VIII" geared engine, when an even better performance, particularly in the matter of take-off and climb, is obtained.

large cross-sectional area, the fuselage is roomy, and there is ample room inside for the camera, wireless and other gear with which the machine is equipped. The seats are adjustable so that the occupants can raise or lower themselves as desired. The gunner's seat disappears, when not in use, thus leaving the cockpit free for fighting. There are two positions for the gunner: one in the cockpit for operating the Lewis gun, and another prone position for bombing. The pilot's armament consists of a Vickers gun mounted on top of the fuselage and firing through the propeller.

Special attention has been paid to the controls, which are mounted in ball bearings to reduce friction. Swaged rods are used everywhere, cables not being employed at all. Generally speaking all control wires run perfectly straight to their points of attachment, but in the few cases where a definite bend has to be negotiated short lengths of chain passing over sprockets are used instead of fairleads; lubrication is by Tecalemit high-pressure greasing wherever possible. In the case of the elevator, for example, the four hinges are connected together by a long hollow hinge-pin running the full width of the elevator and the outer end of the hollow pin carrying the Tecalemit fitting. Thus the one point of application greases all the fittings in the elevator.

Concerning performance, the following data will tell their own story. The speed range is, it will be seen, a wide one, *i.e.*, approximately 2·7 : 1, and the top speed is good, both for the landplane and the seaplane. In view of the long range (6½ hrs. at 15,000 ft., with full load) the bomb load is also very good, amounting to approximately 1½ lb./h.p.

	Landplane	Seaplane
Chord—		
Top ..	7 ft. (2·13 m.)	7 ft. (2·13 m.)
Bottom ..	5 ft. 9 in. (1·75 m.)	5 ft. 9 in. (1·75 m.)
Gap	5 ft. 10·5 in. (1·79 m.)	5 ft. 10·5 in. (1·79 m.)
Wing area ..	450 sq. ft. (41·8 m.²)	450 sq. ft. (41·8 m.²)
Tankage, petrol	150 gals. (680 litres).	150 gals. (680 litres.)
,, oil ..	14 gals. (63·5 litres).	14 gals. (63·5 litres.)
Total loaded weight	5,600 lb. (2,540 kg.).	5,650 lb. (2,570 kg.).
Wing loading ..	12·43 lb./sq. ft. (60·7 kg./m²)	12·55 lb./sq. ft. (61·4 kg./m²)
Power loading ..	11·8 lb./h.p. (5·35 kg./h.p.)	11·9 lb./h.p. (5·41 kg./hp.)
Speed at 4,000 ft.	136 m.p.h. (219 km./h.).	132 m.p.h. (213 km./h.).
,, 10,000 ft.	133 m.p.h. (214 km./h.).	129 m.p.h. (208 km./h.).
,, 15,000 ft.	122 m.p.h. (196 km./h).	119 m.p.h. (192 km./h.).



["FLIGHT" *Photographs*

THE GLOSTER "GORING" SEAPLANE IN FLIGHT: These photographs were obtained during full-load trials over Southampton Water. The pilot was Mr. Rex Stocken.

Leading Particulars of the Gloster "Goring" Landplane and Seaplane

	Landplane	Seaplane
Engine	"Jupiter VIII"	"Jupiter VIII"
Wing span—		
Top	42 ft. (12·8 m.)	42 ft. (12·8 m.)
Bottom ..	33 ft. 4 in. (10·15 m.)	33 ft 4 in. (10·15 m.)
Climb to 4,000 ft. (1,220 m.)	4·5 mins.	4·8 mins.
Climb to 10,000 ft. (3,050 m.)	13·1 mins.	14·2 mins.
Climb to 15,000 ft. (4,570 m.)	27·5 mins.	33 mins.
Service ceiling ..	16,500 ft. (5,032 m.).	15,500 ft. (4,720 m.).
Landing speed ..	51 m.p.h. (82 km./h.).	49 m.p.h. (79 km./h.).
Duration at 15,000 ft. (4·570 m.).	6·5 hours.	6·5 hours.

"Everling Quantities"

"High-speed Figure ..	16·9	15·0
"Distance Figure" ..	4·3	4·25
"Altitude Figure" ..	6·0	5·75

FLIGHT

PRIVATE  FLYING

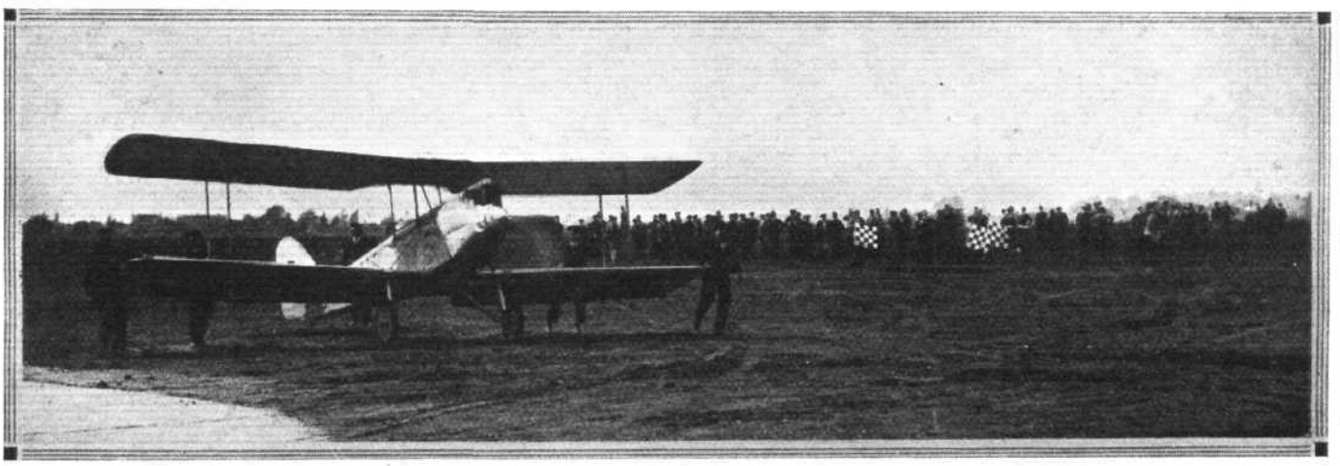
A Section of FLIGHT in the Interests of the Private Owner, Owner-Pilot, and Club Member

CAPE TOWN—ENGLAND FLIGHT

Lady Heath's Return

LADY HEATH completed her 10,000-mile flight from Cape Town at Croydon Aerodrome on May 17. Her Avro "Avian III" appeared over the aerodrome punctual to the time anticipated, escorted by the A.D.C. Aircraft Company's service D.H. "Moth" (Cirrus) piloted by Capt. Neville Stack with whom, as passenger, was Mrs. Stack. He had previously flown as far as Ashford and returned, thinking he had missed the Avro "Avian," but Lady Heath had landed at Lympne on her final lap from Paris. After leaving Croydon again Capt. Stack met her about 15 miles out.

When Lady Heath stepped out of her machine she was dressed in a black straw hat and walking dress in place of the usual flying gear, and her fresh appearance made it difficult to imagine that she had flown through many climates and with many vicissitudes from S. Africa, after spending previous months under the African sun, touring the flying clubs.



["FLIGHT" *Photograph*

HOME: The Avro "Avian III" ("Cirrus" 30-80 h.p. engine) taxying in at Croydon aerodrome on May 17 after the first solo light 'plane flight from Cape Town to England. In the background are some mechanics of A.D.C. Aircraft whose engine played such a reliable part in Lady Heath's tour.

Sir James Heath, her husband, Mr. John Lord of A.V. Roe & Co., Capt. Walker and Mr. Olney, of A.D.C. Aircraft Co., greeted her. On behalf of the latter company, a lady presented her with a bouquet and all the A.D.C. employees emerged from the adjoining works to raise a cheer. From their point of view it was further satisfaction to know that the Cirrus engine, in spite of its exacting trials in varying climates, was still in such perfect order that Lady Heath positively refused to have it touched, although it is her intention to engage in the Hampshire club's meeting at Hamble at Whitsun with the same engine.

Its record during the African tour and homeward flight has been unblemished. Credit is due to the pilot for this as well, for after each stage she always made the advisory inspection and adjustments. Beyond changing gaskets, no other exchange of parts was necessary.

FLIGHT readers will be familiar with the greater part of this tour. To summarise it all: Lady Heath went out to S. Africa last December with Sir James by boat, taking the new Avro "Avian III" She was welcomed at Cape Town by the local club and then began a tour of all the clubs after first taking part in Cape Town's first air meeting on December 11. Major Miller left in his D.H. "Moth" with her and the first club visited was that at Port Elizabeth. A Westland "Widgeon" was presented to the club by the Mayor and christened "Lady Heath." Joy-riding was carried out in which the Avro "Avian" helped, to the financial benefit of the club, and also won a ten-mile race over a triangular course piloted by its owner.

East London was the next stage of the tour, and was followed by Durban, where two flying days had been arranged The usual lucrative joy-riding took place in the interests of the local club. On January 21, Lady Heath reached Johannesburg, after visiting Roberts Heights, where the well-known airmen Sir Pierre van Ryneveld and Lieut. R. R. Bentley were met. The latter escorted her on the resumption of the tour to Johannesburg, flying in his D.H. "Moth" (Cirrus) and carrying both Lady van Ryneveld and Miss Dorys Oldfield (now Mrs. Bentley) in the front cockpit. A local club machine met them over the city, piloted by Capt. Bellin. More joy-riding followed in which the Avro "Avian" helped; also a big flying meeting was arranged. Lady Heath won a race in which Major Miller, Lieut. Bentley and Capt. Bellin (local instructor) were her competitors in D.H. "Moths."

The homeward flight began at Pretoria on February 25 after an overhaul of the machine at Roberts Heights. On the stage to Bulawayo she suffered from sunstroke whilst in the air and landed in native country, where a night was spent in a native hut. Motorists found her safe the following day.

Two days later she reached Victoria Falls. By March 14 Lady Heath, Lieut. Bentley and Mrs. Bentley, were reported at Nairobi.

The next stages were Kisumir (270 miles), and Jinja (200 miles), She was not allowed to cross the Sudan without the escort of Lieut. Bentley. After Mongalla on March 29, came Malakal and Kisti (700 miles), Khartoum (185 miles),

Atbara (196 miles), Wadi Halfa (376 miles), then Cairo on April 4, after a stage of 700 miles alone.

A continuation of the flight along the North African coast and over the sea to Malta without escort was forbidden by the local authorities at Cairo and the Avro "Avian III" was locked up. The Italian Government offered an escort and Lady Heath resumed her journey. At Sollum, Egypt, the tail skid was damaged whilst the machine was taking off and delayed the flight.

Later at Tripoli, a slight attack of fever hindered her also, whilst the Italian seaplane sent to escort her was reported lost in a storm. Happily it was discovered safe on the African coast some time after. Lady Heath avoided troubling an escort, however, by continuing along the coast to Tunis and then making the shorter sea trip to Sicily in order to reach the Italian coast.

On May 8 Lady Heath was in Rome, and continued after six days' visit, flying to Marseilles in approximately 7 hrs. A day later came Dijon, then Paris, and finally Croydon on May 17.

This flight was the first solo effort by light aeroplane from Cape Town to London. Mrs. Bentley reached London a few days before her with her husband on the first light 'plane flight over the same stage. It was estimated that the Avro "Avian III" earned about £1,200 for the clubs in S. Africa by joy-riding and that 60 hrs. flying was done there, whilst the total number of hours flown during the tour and on the homeward flight was 165. Our Air Force had always assisted her when visiting the service aerodromes, but she made a practice of looking after the Cirrus engine herself to a considerable extent.

["FLIGHT" *Photograph*

PENALTY OF FAME: Lady Heath was besieged by photographers at Croydon aerodrome when she landed on May 17, and is here seen facing the battery beside her reliable Avro "Avian" ("Cirrus"). A large crowd raised cheers as she stepped from the machine.

["FLIGHT" *Photograph*

CAPE TOWN-ENGLAND FLIGHT: Lady Heath, with Sir James Heath on her right, jubilant after her successful solo flight from Cape Town. She flew into Croydon attired exactly as seen above. The bouquet was presented to her by a lady on behalf of the A.D.C. Aircraft Company.

Northampton Flying Club

THERE is interest in Northamptonshire in the idea of a flying club, which has long been desired by many town and country enthusiasts. Between fifty and sixty applications for membership have been received, including many from women, and a considerable amount of money has been promised. The present plan is to raise a capital of £2,000, obtain the Government's approval and the subsidy. A suitable landing ground is one of the immediate difficulties. Survey flights in the district have located sites for consideration. Failing success near Northampton, it is likely that an aerodrome will be constructed on a good site at Lavendon. When this difficulty is settled, there will be a meeting to announce the formation of a club, and probably exhibition flying to raise money. Those interested in the idea are Mr. W. G. Williams, of the Derngate Motor Company, Mr. G. Linnell, a pilot, Dr. Lascelles, Mr. Alexander, Mr. Jack Jeyes, and Capt. Jack Addis. Inquiries should be sent to Mr. Williams, 14, Hazelwood Road, Northampton.

Manchester and Aviation

THE Manchester Chamber of Commerce firmly believes that the town will require an aerodrome in the future, and the sooner it is secured the nearer it is likely to be to the centre of the city, which is an important consideration. But it is felt that at the moment the Corporation cannot shoulder the financial responsibility required. The Chamber will give its approval and sympathy to those interested in aviation who can show that the acquisition of an aerodrome will not mean undue additions to the City's rates. Mr. John F. Leeming has taken up the challenge and hopes to prove that the extra addition would not be more than $\frac{1}{8}d.$ per £, and that in a short time the aerodrome would show a profit. He has produced an interesting booklet on Manchester and Aviation, which should be read by all those interested in Manchester's future. His address is Owlpen, Bowdon, Cheshire.

Club for Ulster?

THERE is a suggestion to form a light aeroplane club in Ulster. Flight-Lieut. Preston made a sporting offer of £100 to start a subscription list. Another enthusiast, Mr. G. G. Black, an original member of the London Aeroplane Club, offered to subscribe £50.

FLIGHT

LIGHT 'PLANE CLUBS

LONDON AEROPLANE CLUB

REPORT for week ending May 20 —Flying time, 25 hrs. 20 mins. Dual instruction, 12 hrs. 10 mins.; solo flying, 13 hrs. 10 mins.

Dual instruction (With Capt. S. L. F. St. Barbe): Miss Johnson, E. G. Amsden. (With F. R. Matthews): E. R. Andrews, R. Drysdale Smith, J. Bickley, A. J. Miller, B. L. Middleton.

Solo Flying: J. C. V. K. Watson, A. J. Richardson, F. C. Fisher, R. Sanders Clark, Lieut. E. L. D. Moore, J. A. Brewster, P. W. Hoare, E. R. Andrews, J. H. Saffery, H. B. Michelmore, Maj. K. M. Beaumont, G. J. C. Paul.

CINQUE PORTS FLYING CLUB

REPORT for week ending May 13:—The reports that the club had engaged a pilot instructor were, unfortunately, incorrect, and this post has yet to be filled. We hope to engage someone very shortly.

Capt. Neville Stack, of A.D.C. Aircraft, landed at Lympne on his return from a Continental tour, and hearing of our difficulties, most sportingly offered to come down and instruct for us on Saturday and Sunday. He arrived on Saturday in a D.H.9.C. "Puma" just before lunch, and we were able to do 2 hrs. 50 mins. before he had to return to Croydon.,

On Sunday he arrived at 11.30 a.m., and we put in 3 hrs. 50 mins. flying. The flying record is set out below.

The Committee and Members are extremely grateful to Capt. Stack for so sportingly coming to our assistance. The keenness of the Members augurs well for the time when we start with a permanent Instructor.

Total Flying Time, 6 hrs. 5 mins.

Saturday, May 12: Test flight, 5 mins.

Saturday, May 12: (Joyrides with Capt. Neville Stack): Mrs. Twaites, H. W. Hunt, T. A. Somerset Webb, T. A. M. Stuart Lewis, 15 mins. each. Dual Instruction with Capt. Stack: F. E. Storey, 30 mins.; H. E. Twaites, 15 mins.; Capt. F. D. Little, 30 mins.; R. Dallas Brett, 30 mins.

Sunday, May 13: (Joyrides with Capt. Neville Stack): Maurice Braddell, Capt. L. A. R. Braddell, 15 mins. each.

Dual instruction with Capt. Stack: Capt. F. D. Little, 15 mins.; W. H. Evernden, 15 mins.; H. W. Hunt, 15 mins.; Maurice Braddell, 30 mins.; F. E. Storey, 45 mins.; R. Dallas Brett, 45 mins.

HAMPSHIRE AEROPLANE CLUB

REPORT for week ending May 20.—Total flying time, 31 hrs. 25 mins.; dual instruction, 11 hrs. 55 mins.; "A" Pilots, 9 hrs. 40 mins.; solo, 4 hrs. 25 mins.; passenger flights, 4 hrs. 20 mins.; tests, 1 hr. 5 mins.

Instruction (with Flight-Lieut. F. A. Swoffer): Sir T. Munro, Miss Grace, Mr. Kerry, Nash, Starkey, Goldman, Colls, Ash, Miss Berent, Major Yeats-Brown, Major Jenkins, Mr. Wells, Maudeville, H. King, Capt. Hennessy, Mr. Dickson, Schrieber, Westlake, Crook, Courtney.

Passengers: Miss Grace, Miss Lelube, Mrs. Fry, Mr. Boxall, Angui, Mrs. Robinson, Harrington, R. H. Alsford, M. J. Alsford, Mrs. Fortlage, Mr. Fortlage, Beadle, Carter, Comdy, Byrne, Lady Munro, Mrs. Holmes, Mr. Grant, Lovett, Miss Kettlewell, Mrs. Harrington, Boxall.

Sir T. Munro did a very successful first solo on Tuesday, and Mr. Powell carried out his tests for his "A" Licence. High winds and rain have very considerably reduced our activities this week. We are hoping that they will not interfere with our Pageant next Monday. All the arrangements are now well in hand and visitors are assured of a most excellent show.

Mr. Schrieber's first solo was very successful, as far as the circuit and landing was concerned, but he was not so successful when he tried to taxy through the posts that have been erected for the enclosures for the Pageant. The posts got the better of the argument over the starboard wing.

MIDLAND AERO CLUB LIMITED

REPORT for week ending May 19.—Total flying time, 24 hrrs. 25 mins.; dual, 14 hrs. 27 mins.; solo, 7 hrs. 8 mins.; passenger, 1 hr. 50 mins.; test, 1 hr.

The following members were given dual instruction by (Flight-Lieut. T. Rose, D.F.C., and Mr. W. H. Sutcliffe): Capt. H. Tower, M. Turner, T. H. Drury, J. Cobb, Capt. J. C. Chaytor, S. Duckitt, R. C. Baxter, G. E. C. Hill, H. Coleman, H. Beamish.

Secondary dual: J. Rowley, H. J. Willis, W. M. Morris, E. P. Lane, H. Tipper, E. J. Brighton, C. W. Fellowes, S. Hall, R. L. Jackson.

Solo: R. D. Bednell,; H. Tipper, S. G. Hall, H. J. Willis, S. H. Smith, W. M. Morris, E. J. Brighton, G. Robson, J. Rowley, E. P. Lane, R. L. Jackson, E. D. Wynn, S. W. Fellowes.

Passengers: C. H. James, W. Skuce, J. H. Moore, M. A. Murtagh, G. C. Jones, S. E. Browne.

On Sunday, Messrs. W. M. Morris and H. Tipper passed all tests for their "A" Licence.

"LT" has been out of commission during the week for general overhaul.

NEWCASTLE-UPON-TYNE AERO CLUB

FLYING report for week ending May 20.—Total time, 28 hrs. 50 mins. instruction, 7 hrs.; solo, training, 1 hr. 50 mins.; "A" pilots, 18 hrs. 20 mins.; passengers, 30 mins.; tests, 1 hr. 10 mins.

Instruction (with Mr. Parkinson): Miss Klyver, Miss Rambaut, Capt. Lynden Bell, Messrs. Hayton, Cochrane Carr, Redshaw, Temple, Mechan, W. J. Brown.

Solo, training, Mr. Redshaw, Dr. Alderson.

"A" Pilots: Mrs. Heslop, Dr. Dixon, Messrs. Lloyd Browne, R. N. Thompson, C. Thompson, Runciman, J. D. Irving, Wilson, Brooks, N. S. Todd, Baxter, Ellis, P. F. Heppell, Turnbull.

Passengers (with Mrs. Heslop): Mr. C. Thompson; (with Mr. N. S. Todd). Mr. A. Bell; (with Mr. Baxter Ellis): Mr. Bulmer; (with Dr. H. B. L. Dixon): Mrs. Robson; (with Mr. C. Thompson): Mrs. Heslop, Miss Bulmer; (with Mr. A. Bell), Miss E. Bell, Mr. L. Tait, Mr. H. C. Walker, Mr. R. G. Lawson.

Mr. F. W. Redshaw carried out his first solo flight on Thursday, putting up a good show.

Mr. Lines, of British Airships, Ltd., called at the Aerodrome *en route* to and from Berwick, from where he collected photographs of the opening ceremony of the new bridge, on Tuesday and Wednesday. After filling up the tank of the Avian, he left and continued his journey on each occasion, on the trip north, facing a strong wind, and assisted by a similar wind on the return trip.

Mr. M. Bainbridge carried out a flight on the D.H. 53, G-EBTT, which he considers purchasing from the present owner.

Mr. R. N. Thompson and Mr. Lloyd Browne flew to Sherburn, on Saturday, to attend the meet in connection with the opening of the Yorkshire Club's new clubhouse, returning on Sunday.

Yorkshire apparently experienced their usual ill luck in the matter of weather, The members of this Club sympathise with them and trust that they may be more fortunate on future occasions.

NORFOLK & NORWICH AERO CLUB

REPORT for week ending May 20.—Total hours flown, 8 hrs. 35 mins.

Instruction with Mr. Young: Messrs. H. Neave, E. Varden Smith, E. Lambert, H. P. Clarke.

Soloists: Messrs. N. Brett, G. Barker, W. A. Ramsay, G. Surtees, R. T. Harmer, F. Gough, W. P. Cubitt, R. F. Potter, E. Lambert.

Flying has only been possible on two days this week owing to the heavy rain storms and thoroughly unpleasant weather generally. When it did settle, however, good use was made of the time. We anticipate collecting our "Moth" this week after her repairs, and shall then be able to better cope with the rush of people wanting to fly. Many new members have joined this week, and intend to come up to our big display on the 30th. This show is going really well, and there are lots of surprises up the Committee's sleeve.

SUFFOLK AND EASTERN COUNTIES AEROPLANE CLUB

REPORT for week ending May 19.—Flying time, 15 hrs. Instruction, 8 hrs. 15 mins. "A & B" pilots, 2 hrs. 15 mins. Soloists, 1 hr. 10 mins. Passenger flights, 2 hrs. 45 mins. Tests, 35 mins.

Dual instruction with Mr. Lowdell: Dr. Mildred Yate, Miss Rhodes, Miss Edwards, Mrs. Young, Dr. Dunn, Messrs. Billinton, Goodwin, Marriage, Smith, Hanson, Verney and Flying-Officer Birt, R.A.F.

A. & B. Pilots, solo: Dr. J. C. Sleigh, Messrs. Prentice and Schofield.

Solo under instruction: Miss Edwards, F./O. Birt, Messrs. Hanson, Smith, and Verney.

Passengers with Mr. Lowdell, 10; with Mr. Prentice, 6.

Two propaganda flights for the purpose of increasing "airmindedness" in East Anglia were carried out during the week. On Tuesday, Miss Edwards and Mr. Lowdell flew over to Halesworth, and on Friday Mr. Jolly and Mr. Lowdell flew over to Diss. A landing was made at both places, and a large number of people were given an opportunity to inspect an aeroplane at close quarters for the first time. Such trips appear to arouse great interest, and they certainly do a vast amount of good in the cause of aviation.

This week the club has broken all its previous records with regard to flying time, despite the fact that the weather was none too good, and several members who are under instruction were away. This is a sure proof of the steady growth in size and vitality of the Club.

The Club will be closed from Thursday evening, May 24, to Thursday morning, May 31. Both machines go to Hamble on Saturday, and return on Tuesday. They will be flown by Mr. C. N. Prentice and Mr. G. E. Lowdell, A.F.M. The Headquarters of the Club from Saturday to Tuesday will be the Red Lion Hotel, Fareham, Hants.

On Wednesday, May 30, both machines will go to Norwich, piloted by Dr. J. C. Sleigh and Mr. Lowdell, to take part in the Display and the Inspection by H.R.H. The Prince of Wales, K.G. It has been arranged that Mr. Lowdell shall give an exhibition on the "Genet-Bluebird" of aerobatics and upside-down flying during the afternoon.

YORKSHIRE AEROPLANE CLUB

REPORT for week ending May 19.—Flying time, 21 hrs. 15 mins. Instruction, 6 hrs. 55 mins. Soloists, 13 hrs. 30 mins. Passengers, 50 mins.

Instruction (with Captain Beck): Messrs. Bell, Blackburn, Daly, Fitton, Harral, Ives, Ostler, Reynolds, Roberts, Senior.

Instruction (with Mr. Stockbridge): Mr. Ostler.

Soloists: Messrs. D. Atcherley, Dick.

"A" Pilots: Messrs. Ambler, Clayton, Ellison, Humpheries, R. Lax Lister, Mann, Norway, Thomson.

"B" pilot: Mr. Loton. Passengers: 7.

The outstanding event of a rainy week took place in a torrential downpour yesterday, when the Club-house was officialy opened by the President, Col. Sir Edward Brotherton, Bart, LL.D., D.L., who commemorated the occasion by a further generous donation of £100 to ease the financial position of the Club.

The Berkshire Aviation Tours, Ltd., sent a machine with Mr. Rimmer, who kindly gave an exhibition of aerobatics and flew the machine for a demonstration of wing-walking. Messrs. Thompson and Brown came down from Newcastle, and kindly treated several Members of the Club to a pleasurable trip in a "Moth."

The President was greeted on his arrival by a close formation of the club's three Bluebirds, which followed his car along the road from Garforth, and gave him a diving salute as he stepped out of his car in front of the club-house door. The continuous downpour of rain completely damped the ardour of many present, who would have cheerfully flown had the sun been shining. The ceremony was concluded in the usual manner appertaining to wet Yorkshire Pageants.

FROM THE FLYING SCHOOLS

The De Havilland Flying School, Stag Lane Aerodrome

REPORT for week ending May 20.—Total flying time, 105 hrs. Instruction, dual, 28 hrs. 15 mins.; solo, 69 hrs. Other flying, 7 hrs. 45 mins.

Work on the school was greatly curtailed owing to the consistently stormy weather which prevailed. Nevertheless, three pupils carried out tests for "B" licences, including Mr. A. S. Butler, Chairman of the de Havilland Aircraft Co., Ltd., who successfully passed the night-flying test at Croydon Aerodrome.

Six new "Moths" were "introduced to the atmosphere" during the week.

Henderson Flying School, Ltd., Brooklands Aerodrome.

REPORT for week ending May 17.—Total flying time, 30 hrs.

Dual with Colonel G. L. P. Henderson, Miss Kidston, Bellville, Brooks.

Dual with Capt. H. D. Davis: Messrs. Raymond Quilter, Art Fowler, Moss, Dr. Forsyth, Hughes, Oliver, Allen, Barclay, Saunders, Murray-Philipson, Hamilton, Dr. Wall, Payne.

Solo: Messrs. Oliver, Murray-Philipson, Dr. Wall, Patton-Bethune, Hamilton, Allen, Barclay, Hsiao.

Colonel Henderson sent Mr. Bellville solo on Sunday, and the flight was completed with the usual H.F.S. 3-point landing.

The school will be open on Whit-Saturday and Sunday, but closed on Bank Holiday Monday.

Our machines will be flying at the Hamble Air Meeting, piloted by Col. G. L. P. Henderson, Capt. H. D. Davis, and Capt. Davenport.

THE SOUTHERN AERO CLUB'S FLYING MEETING

ON Saturday last, May 19, the Southern Aero Club held their first meeting, and despite the bad weather reports sunshine prevailed throughout the afternoon and the meeting was very successful. The attendance was also good, being approximately 6,000.

Proceedings opened at 2.30 p.m. with the Fly Past, in which seven machines took part, as follows—Avro " Baby," Avro " Avian," Avro 504K, Avro " Gosport " (one member of the Avro family, the " Lynx," was unable to be present owing to indisposition), Blackburn " Bluebird," D.H. " Moth," and S.E.5a.

The second event, The Club Instructors' Obstacle Race, proved quite amusing. In this the instructors and crew were lined up and started by the firing of a pistol. They raced to their machines and a lively tussle ensued to sort out sundry flying garments—which had been securely tied up—and then took off in their respective machines and flew three circuits. C. L. Pashley was the first away and the subsequent winner.

Following this came a delightful demonstration of flying by Capt. Broad on a D.H. " Moth," fitted with the new D.H. engine. His " show " was very much appreciated and warmly applauded.

The next event, a wing-folding competition—in which competitors had to unfold the wings, start machine, fly one circuit, land and fold wings—provided a thrilling finish, Capt. Broad just beating F. G. Miles in his Avro " Avian," and Capt. Neville Stack (D.H. " Moth ") making a close third. The prizes for this event were : 1st, Silver cigarette box, presented by F. G. Miles, Snr. ; 2nd, Propeller clock, presented by the club ; 3rd, " Fill-up " 20 gals. of petrol, by Gnat Aero Co.

Flight-Lieut. Luxmore then gave an exhibition of flying on the new all-metal Avro " Gosport," and put up an exceptionally good show—his slow flying being greatly appreciated by the audience.

Capt. Blake next took the air on his Blackburn " Bluebird," and demonstrated the efficiency of this machine to great advantage. He, also, put up some slow flying, and during his hovering it was hard to realise that he had not a slot or two hidden up his sleeve.

As one of the events down on the programme—the Balloon Bursting Competition—could not be held, aerial bombing a car with flour bags was substituted. This was won by Flight-Lieut. Luxmore for the most consistent shots ; no direct hits were recorded.

After this came a demonstration of Wing-Walking by A. H. Hawes on one of the Gnat Aero Co.'s Avros, piloted by F. G. Miles, Jnr.

The ominous presence of black clouds caused the last event to be pushed forward, and a native citadel was bombed and destroyed. In the absence of the R.A.F., Messrs. Broad, Stack and Luxmore undertook the offensive, and succeeded in driving out the hostile Arabs, who were composed of boys of the Lancing College O.T.C.

The silver cup presented by J. de Vere Naunton for the taxi-ing competition was won by Capt. Broad. Flight-Lieut. Luxmore received a propeller clock from the club, and Capt. Stack a fill-up from the Gnat Aero Co., Ltd.

The final event of a climb to 2,000 ft. was won by Capt. Broad on a " Moth," time, 2 mins. 35 secs. ; Flight-Lieut. Luxmore, Avro " Gosport," time 2 mins. 46 secs. ; L. F. R. Bellairs, Avro " Avian," 3 mins. 46 secs.

The prizes of a silver cup and a propeller clock for the smartest machine were won by Capt. Neville Stack, " Moth," and F. P. Raynham, " Avian."

The prizes were presented to the various winners by Mrs. F. Raynham in the club house, amongst a happy gathering.

Among the many who flew to the meeting was Maj. Mealing, who officially represented Sir Sefton Brancker.

AVIATION HONOURS LADY HEATH

A LUNCHEON in honour of Lady Heath's latest flight from Cape Town to Croydon, which ended on May 17, was given on May 23, at the May Fair Hotel by the Air League of the British Empire, in co-operation with the Royal Aeronautical Society, Royal Aero Club and Society of British Aircraft Constructors.

His Grace The Duke of Sutherland presided. He stated that they were gathered to do honour to Lady Heath, and before continuing his speech he referred to the receipt of many telegrams from those who were unable to be present, and offering their congratulations to Lady Heath. One was from the secretary of the Women's Athletic Association, in which Lady Heath was eulogised as a pioneer of athletics amongst women. The Essex and Middlesex Flying Club also sent their congratulations.

His Grace said that but for the short notice there would have been a larger gathering. They were gathered, he continued, to welcome an intrepid lady who is a pioneer in aviation throughout England and the whole world. Her flight had proved the safety and reliability of the British aeroplane and British engine. The culminating exploit had not to make us forget what Lady Heath had already done for aviation. With Lady Bailey she shared altitude records, had won trophies all over Europe, and was the first woman to loop the loop.

She had demonstrated that the air age had definitely arrived, and woman's persuasion, continued the chairman, was more effective than man's.

The world had not conceived as possible for women a flight alone from Cape Town to England until her flight. When flying between Pretoria and Bulawayo she was attacked by sunstroke and along the African coast a native fired at her. Over Nairobi he understood that it was necessary to lighten her machine, so she threw overboard tennis rackets and several novels. It would be interesting to know what novels they were, commented His Grace. She arrived at Croydon, however, completely unruffled. During the flight she had been looked after by Lieut. Bentley, whom they were proud to have with them that day. Referring to her previous career, he said that Lady Heath had taken a science degree at Dublin University and lectured at Aberdeen University. She had held the world's record for women in the high jump.

In conclusion, said the chairman, Lady Heath was an inspiration to all aviation in the world.

Lady Heath then rose. She could not thank them enough, she said, for the welcome given her by the Air League and other Societies. Her flight had been done in slow time and over a round-about route as she had had no wish to be the first to cover a particular area.

All previous flights between our Colonies had been started from this country, and she took her Avro " Avian " to Africa by boat last December in order to see what could be done without any previous organisation. The difficulties encountered had at times been almost insurmountable. It had been impossible to get the right fuel and local fuel had cost her 5*s*. 6*d*. per gallon. But in every place, however, she had been able to get Wakefield oil. The " Cirrus " engine with which she had flown 173 hrs. had given marvellous service.

Lieut. Bentley had been a great help, particularly at Abercorn when a petrol leak occurred. One difficulty was the absence of maps. Lieut. Bentley had the only maps of the route and he generously let her have them.

Lady Heath next emphasised the lack of communications in some parts of Africa and the consequent danger to those travelling by road, motor car or air. There was one stretch of 600 miles of fever swamp. It was not realised, she said, what our Colonies are to us.

Describing her flight briefly, she traced her progress first round the coast from Cape Town to the five flying clubs. One of her passengers had since learnt to fly and bought a machine. She believed that one was always doing something for aviation when carrying a passenger. There was tremendous enthusiasm amongst the clubs and the whole country was dying to get into touch with aviation.

In conclusion, Lady Heath thanked the numerous bodies who had helped the flight, amongst them, the Colonial Services and Headquarters, Italy, the R.A.F., A. V. Roe and Co., A.D.C. Aircraft, Sir Charles Wakefield, S. African A.F. Rand Daily Mail. She also made the suggestion that the firms concerned in her flight might like to subscribe for a fund for the Air League to found four Flying Scholarships. She hoped £200 might be raised.

Amongst those present were :—

Sir Hamar Greenwood, Sir Sefton Brancker, Sir J. F. A. Higgins, Mr. Philip S. Foster, Sir Charles Wakefield, Col. The Master of Sempill, Mr. Fairey, Mr. R. Blackburn, Mr. A. V. Roe, Mr. T. Sopwith, Sir F. R. McClean, Mr. J. Ford, General P. R. C. Groves, Col. O. Darby, Mr. Griffith Brewer, Capt. P. D. Acland, Col. N. G. Thwaites, Maj. J. Stewart, Col. Barrett Leonard, Capt. Farina, Lieut.-Col. Coppi and Mr. A. L. Chorlton.

FLIGHT

THE BRISTOL "JUPITER" FAMILY (I)

Leading Particulars of Seven Standard Types

IT is an old saying that imitation is the sincerest form of flattery. In the aero engine world, the modern form of imitation, fortunately, often takes the form of building under licence, and on this basis probably no aero engine in the world has been the subject of a greater amount of sincere flattery than the Bristol "Jupiter," which is being, or about to be, manufactured under licence in a great number of foreign countries. Thus, at the present moment, the "Jupiter" is being manufactured in no less than eleven different countries. This fact speaks for itself. Moreover, the "Jupiter" is in use in the military and naval services of more than 20 European countries, while an ever-increasing number of engines are being employed in commercial aviation, the recent types which have been added to the "Jupiter" family having been produced largely with the requirements of civil aviation in view.

The popularity of the Bristol "Jupiter" engine being by now well established, we have thought it would interest our readers, both at home and abroad, to have a fuller account than has hitherto been possible of the number of types now available, the details of their design and construction explained and illustrated. We have, therefore, made special arrangements with the Bristol company in the matter of placing at the disposal of FLIGHT much detailed information which has not yet been published, so that our readers will be the better able to understand the reasons which have contributed to the favour with which the "Jupiter" engine is regarded at home and abroad. One feature of the engine, of vast importance in itself, which no amount of description or illustration can adequately convey, is the exquisite workmanship put into these engines by the Bristol Company. A tour of inspection of the new engine works at Filton, such as we were privileged to make recently, leaves one amazed. Firstly, that it should be possible, and secondly, that it should be commercially practicable. We have not the space here to go into details concerning the manufacturing side, but perhaps some little idea of the degree of care bestowed upon the manufacture of the Bristol "Jupiter" engines can be formed when we point out that already a large percentage of the components from which the engine is made are machined all over. At the moment this applies to the crankcase, for instance. It is likely to be extended to even more complicated parts, such as cylinder heads. But the point to keep in mind is that nothing but the best is regarded at Filton as being good enough.

It might be argued that such refinement is not really necessary. Mr. Feddon has a good reply to this. His argument is that, if under peace time conditions something better than merely good enough is produced, then in case of emergency, when mass production must inevitably reduce quality to *some* extent, the engine will still be thoroughly sound and reliable. It might be thought that such meticulous care as is taken in the manufacture of the "Jupiter" must result in a very high price. Actually this does not appear to be the case. Probably this is due, in no small measure, to the genius of Mr. Whitehead, who presides over the engine works, and who appears to have solved the problem of combining laboratory workmanship with quantity production. One can see directions in which some of the extra cost of machining operation may be regained in a saving in scrap and waste of castings, etc., but even so, the layman is puzzled to reconcile such perfection of workmanship and finish with a reasonable commercial price. Probably the truth is one which Mr. J. D. North is fond of expressing somewhat as follows: "When a critic complains that a thing is expensive to make, it usually merely means that he does not know how to make it."

However, to return to the family of "Jupiters" now available, since the beginning of the present year the Bristol company has standardised seven distinct types of engine, of which three are of the direct-drive "Jupiter VI" series, known as the VI.A (compression ratio 6·3 : 1), the VI A.M. (compression ratio 5·3 : 1), and the VI A.L. (compression ratio 5 : 1). One is a standard service engine with gear-driven supercharger, and is known as the Series VII. The remaining three are geared engines fitted with the 2 : 1 Farman reduction gear for which the Bristol company has secured the British rights, and are designated as Series VIII, IX and XI, respectively, according to compression ratio. The VIII is a standard service engine, with a compression ratio of 5·8 : 1. The IX is a general purpose engine, with a compression ratio of 5·3 : 1, and the XI is the commercial version, with a compression ratio of 5 : 1.

In the same way, the Series VI consists of a high-compression type, standard service engine, the VI.A., the VI.A.M. general purpose engine, and the VI A.L. commercial engine.

The main particulars of each type are given in the table below.

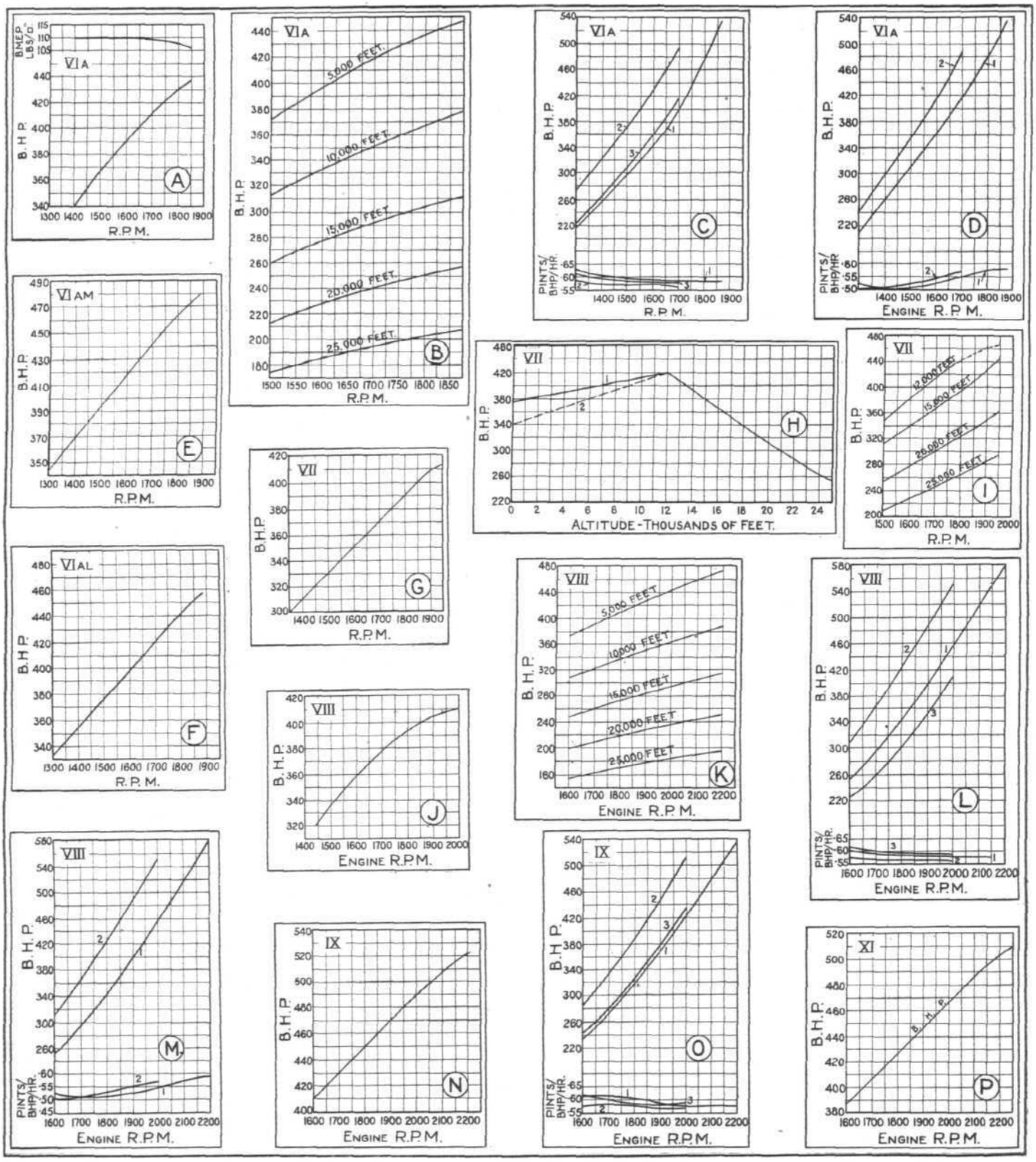
It is not intended here to go into details concerning the design and construction of the "Jupiters," but a few remarks may be of assistance in forming an opinion as to the main features of the different types. To begin with, the "Jupiter" VIA, is the famous VI with certain detail improvements. For instance, the cylinders and pistons have been improved, the former having additional cooling fins, triple valve springs and ball-bearing rocker gear. These improvements have been included in the whole series, making them interchangeable as regards cylinder components. As already stated, the difference between the Series VI A and the VI A.M. and VI A.L. is one of compression ratio only.

The Series VII "Jupiter" is interesting on account of the fact that it is fitted with a gear-driven supercharger designed to maintain ground-level power up to 12,000 ft. The gearing and drive for this blower has been the subject of very careful

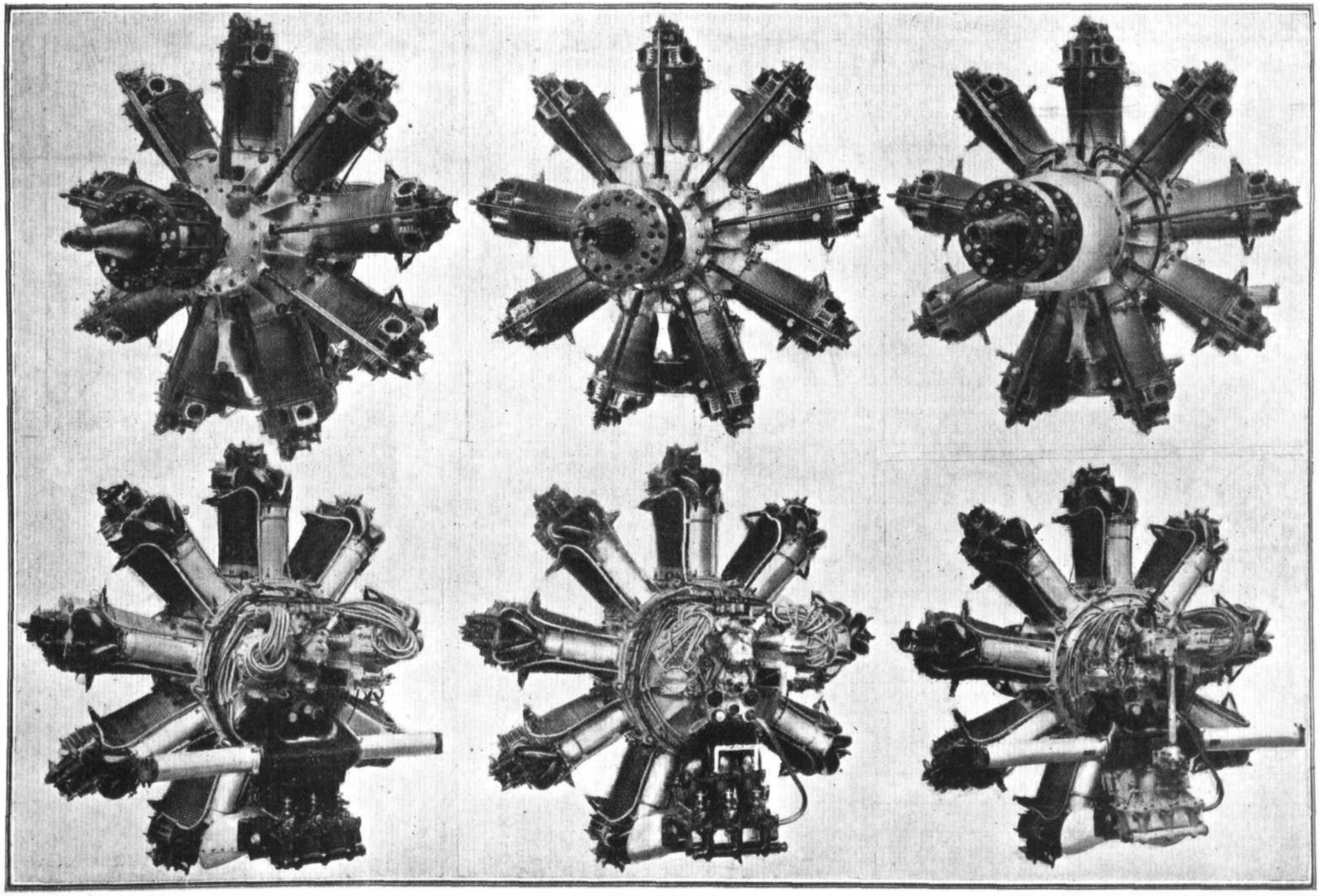
Leading Particulars of Bristol "Jupiter" Engines

		VI A.	VI A.M.	VI A.L.	VII	VIII	IX	XI
Engine, Series		VI A.	VI A.M.	VI A.L.	VII	VIII	IX	XI
Bore, inches		5·75	5·75	5·75	5·75	5·75	5·75	5·75
Stroke, ,,		7·50	7·50	7·50	7·50	7·50	7·50	7·50
Swept vol., cub. in.		1,752	1,752	1,752	1,752	1,752	1,752	1,752
,, litres		28·722	28·722	28·722	28·722	28·722	28·722	28·722
Compression ratio		6·3 : 1	5·3 : 1	5·0 : 1	5·3 : 1	5·8 : 1	5·3 : 1	5·0 : 1
Normal engine r.p.m.		1,700	1,700	1,700	1,775	2,000	2,000	2,000
Gear ratio		Nil	Nil	Nil	Nil	2 : 1	2 : 1	2 : 1
Propeller		L.H.T.	L.H.T.	L.H.T.	L.H.T.	L.H.T.	L.H.T.	L.H.T.
Ground	Normal r.p.m. of prop.	1,700	1,700	1,700	See Power Curve	1,000	1,000	1,000
Ground	Normal h.p.	415	440	420	See Power Curve	450	485	460
Ground	Max. r.p.m. of prop.	—	1,870	1,870	See Power Curve	—	1,100	1,100
Ground	Maximum h.p.	—	480	460	See Power Curve	—	525	500
Rated Altitude	Altitude, ft.	5,000	Ground	Ground	12,000	3,000	Ground	Ground
Rated Altitude	Normal r.p.m. of prop.	1,700	—	—	1,775	1,000	—	—
Rated Altitude	Normal h.p.	415	—	—	420	455	—	—
Rated Altitude	Max. r.p.m. of prop.	1,870	—	—	1,950	1,100	—	—
Rated Altitude	Maximum h.p.	460	—	—	—	490	—	—
Ignition		Fixed	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed
Oil pressure lb./sq. in		40	40	40	40	60	60	60
Oil return, normal r.p.m., gals./hr.		45	45	45	40	65	65	65
Tachometer drive, fraction of engine speed		¼	¼	¼	¼	¼	¼	¼
Standard weight, bare lbs.		720	720	720	760	880	880	880
Engine control		Gate Throttle	Standard	Standard	*	Gate Throttle	Standard	Standard

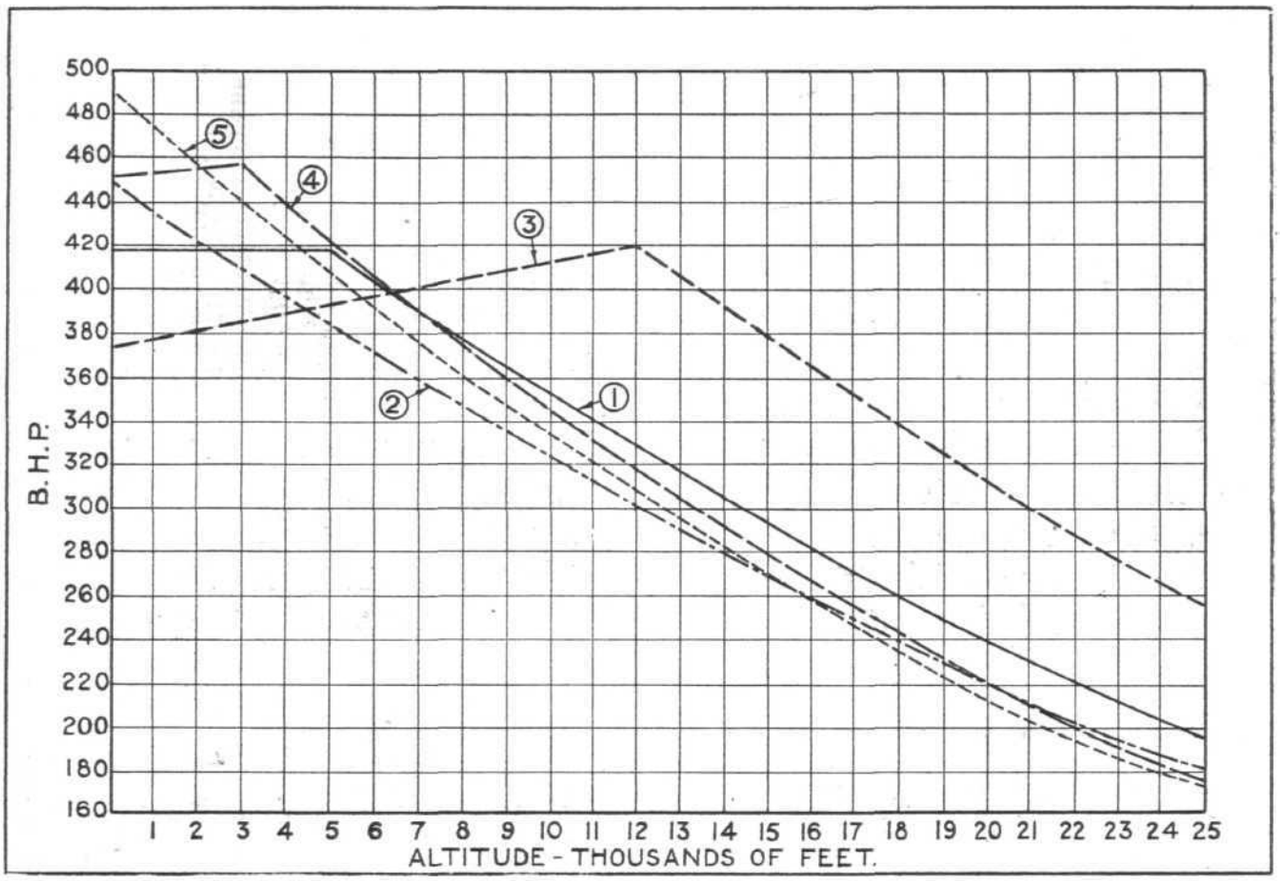
* Gate throttle boost gauge.



POWER CURVES &c. OF THE "JUPITER" FAMILY: A, Max. ground level power of VI A at various revs. with standard 80/20 fuel, throttle set at ground position. B, Maximum power available at altitude. C, Throttle consumption curves of same engine without economiser in operation. 1, Full throttle at 1,870 r.p.m. 2, Full throttle at 1,700 r.p.m. 3, Throttle at gate position at 1,700 r.p.m. Test 3, Standard 80/20 fuel; tests 1 and 2, standard 80/20 fuel plus T.E.F. (5 c.c. per gallon). D, Throttle consumption curves with economiser in operation. Latest Triplex Mark III carburettors with long-range type economiser. 1, full throttle at 1,870 r.p.m.; 2, full throttle at 1,700 r.p.m. E, Full throttle power curve of the VI A.M. (5·3). F, Full throttle power curve of the VI A.L. (5 : 1). G, Power at ground level of the VII, showing power available with standard fuel at various r.p.m. Engine throttled to rated boost-2·5 in. H.G. (1·25 lb. per sq. in.). Standard temperature and pressure conditions. H, Power at altitude of the Series VII. I, Max. power available at 1,775 normal r.p.m. 2, Estimated power available with fixed pitch propeller giving 1,775 r.p.m. full throttle at 12,000 ft. and approximately 1,550 r.p.m. at ground. Both curves from ground to 12,000 ft. throttled to rated boost. After 12,000 ft. full throttle. I, Altitude power curves of Series VII. The full lines show full throttle at or below rated boost. The dotted curve throttled to rated boost. J, Max. ground power of Series VIII at various r.p.m. with standard fuel. Throttle set at ground position. K, Altitude power curves of Series VIII. L, Throttle consumption curves of Series VIII without economiser in operation. 1, Full throttle at 2,200 r.p.m.; 2, full throttle at 2,000 r.p.m.; 3, throttle at gate position at 2,000 r.p.m. Test 3, standard fuel. Tests 1 and 2 standard fuel plus T.E.F. (5 c.c. per gallon). M, Throttle consumption curves of Series VIII with economiser in operation. 1, Full throttle at 2,200 r.p.m.; 2, full throttle at 2,000 r.p.m. N. Full throttle power curve of Series IX. O, Throttle consumption curves of Series IX without economiser in operation. 1, Full throttle at 2,200 r.p.m.; 2, full throttle at 2,000 r.p.m.; 3, 90 per cent. power at 2,000 r.p.m. All tests with standard fuel. P, Full throttle power curve of Series XI (5 : 1).



THE BRISTOL " JUPITER " FAMILY : On the left, front and rear views of the Series VI A., VI A.M., and VI A.L. direct-drive type. In the centre, front and rear view of the Series VII, direct-drive supercharged engine. On the right, front and rear view of the geared type, Series VIII, IX and XI.



THE BRISTOL "JUPITERS": Curves of comparative power at altitude. Maximum power available at normal r.p.m. with standard 80/20 fuel. 1. The VI A (6·3) b.h.p. at 1,700 r.p.m. 2. VI A.M. (5·3) b.h.p. at 1,700 r.p.m. 3. The VII, b.h.p. at 1,775 r.p.m. 4. The VIII (5·8) b.h.p. at 2,000 r.p.m. 5. The IX (5·3) b.h.p. at 2,000 r.p.m.

work, as will be realised when we point out that a special test bed was designed, on which the gearing and blower was run for some thousands of hours before being definitely adopted and standardised. The weight of the blower adds but 40 lbs. to the weight of the engine. This engine is especially intended for high-performance fighters, and gives a remarkable improvement in performance at altitude, the improvements over the Series VI engine, on similar machines, being of the order of 10 per cent. on speed, and more than 20 per cent. on climb. A valuable feature in connection with the Series VII engine is that it is interchangeable with the series VI A. as regards installation.

The introduction of the geared types of "Jupiter" has been welcomed by aircraft designers because of the increased propeller efficiency which the 2 : 1 reduction gear gives. The gear, it is superfluous to state, adds a not inconsiderable weight to the engine, but for almost all types of aircraft it is likely that the extra thrust horse-power more than makes up for this. No hard-and-fast rules can be laid down as to the advantage of the geared engine, as this depends, to a great extent, on the type of machine in which the engine is fitted. The advantage is greatest in machines with relatively low forward speed, and particularly on take-off and climb, but even on fast machines it would appear that gearing is well worth while. The Farman type of bevel reduction gear has been given hundreds of hours of running on the test bench, and has been tried on some eight different types of machines, and in every case it has proved robust, efficient and silent. The only criticism that could possibly be advanced is that this particular type of gear is somewhat restricted in the matter of gear ratios. That, however, is probably not a very great drawback.

Among other improvements, reference may be made to those effected in the details of the Bristol Triplex carburettor. The increased speeds of the supercharged and geared engines brought problems of their own, but the carburettor has kept pace with developments, and has been flight-tested extensively, so as to examine it under actual flying conditions.

The increased speeds of the various engines has also necessitated modifications to the exhaust rings, and here again, extensive tests have been undertaken. As a result of these, an entirely new design of ring has been produced, in which back-pressure has been reduced to less than ½ lb./sq. in., and the ring temperature brought down to an absolutely safe limit. Two types of ring are at present available, one for the Series VI A direct-drive engines, and one for the geared engines. Both have been type-tested and are in production.

FEATURES OF THE BRISTOL "JUPITER" ENGINES

READERS of FLIGHT who have been interested in the article on the Bristol "Jupiter" family given above, should make a point of writing to the Bristol Aeroplane Company, Ltd., of Filton, Bristol, for a copy of a most interesting booklet which the firm has just issued under the title "Features in the Design and Construction of the 'Bristol' Jupiter Radial Aircooled Engine." This little booklet, of 55 pages, is in no sense an "Instruction Manual," to be used by those who see to the care and maintenance of the "Jupiters." Rather, is it a non-technical treatise on the outstanding features in the design and construction of these engines, features which, by the way, have been instrumental in making the "Jupiter" engine one of the most popular aero engines in the world.

Few there are who would not be interested to know that the introduction of drop-forged Duralumin crankcases for these engines has resulted in a 200 per cent. increase in the effective strength/weight ratio, or that a constant valve clearance is maintained irrespective of whether the cylinder is hot or cold. The methods by which this and numerous other special advantages are attained are clearly set out.

The "Jupiter" induction system has always been one of the very special features of this engine. It makes use of a "three-start" casting, so shaped that the pitch of the convolutions is such that each in turn reaches the induction pipe of three cylinders out of the nine. Used with one of the special "Triplex" carburettors which Bristols have evolved, this spiral induction distributor has much to do with the smooth running of the engine. Its shape, and the manner of its working, are admirably shown in the booklet, which is illustrated by a large number of very clear illustrations, photographs, drawings and diagrams.

FLIGHT

African Air Survey

SIR ALAN COBHAM left Sierra Leone on May 19 for Bathurst in the Short "Singapore" flying-boat, after a brief delay due to the necessity of cleaning the hull, and arrived safely at his destination. Las Palmas (Grand Canary) was reached on May 22. He is expected at Plymouth, England, at the end of this month. It is stated that Sir Alan considers that there is no demand for a regular air service on the West Coast of Africa, but suggests separate services for each colony. It has been arranged that Sir Alan shall tour our leading seaports after his arrival, arrangements having been made by co-operation between the Air League of the British Empire and the Lord Mayors, Lord Provosts and Mayors of the towns.

Great Flying-Boat Cruise

THE four R.A.F. "Southampton" flying-boats which are engaged on the Far East cruise resumed from Singapore on May 21 and reached Klabat Bay, Banka Island. At dawn the next day they left for Batavia.

Croydon-Khartoum in Five Days

MR. VAN LEAR BLACK, who is flying to the Cape, reached Sollum, Egypt, on May 17, Cairo May 18, and Khartoum May 19. He is flying in a Fokker monoplane fitted with three Bristol "Titans," and left Croydon on May 14.

Wing-Commander Manning

OUR readers will recall the abrupt end to Wing-Commander Manning's flight from England towards Australia, at Homs on the North African coast. In a letter from him to the Westland Aircraft Company he explains that the sole cause of his crash was a single telegraph wire which the Westland "Widgeon" hit as it was landing. The back of the machine was broken. He has resumed his journey by boat.

D'Oisy Crashes

CAPT. PELLETIER D'OISY and his crew, Capt. Gonin and M. Carol, crashed at Akyab on May 16 and the machine was destroyed. Gonin and Carol were slightly injured. In their Potez 29 (470 h.p. Lorraine) they had flown from France since May 8, and intended to return via Tokio and Siberia.

French World Airmen's European Tour

CAPT. D. COSTES and Lieut. Le Brix left Paris on May 20 on an air tour of Europe in the Breguet 19.A.2 (600 h.p. Hispano-Suiza engine), the machine in which they made their recent air tour of the world. They reached Belgrade in the afternoon, and left later for Bucharest.

"Bremen" Crashes

IN accordance with the proposed plans, Mr. Melchior, the Junkers pilot in America, descended on Greenly Island by parachute from the American Loening amphibian and prepared the "Bremen," in which Maj. Fitzmaurice, Baron Von Huenefeld and Capt. Koehl crossed the Atlantic, for flight. In taking off, however, the machine apparently stalled, and in the resultant crash was badly damaged. The pilot and mechanic had lucky escapes. A second Junkers monoplane, "Bremen II," in which the three Atlantic airmen have been making a tour of America, was damaged when landing at Detroit, and the journey to Boston had to be resumed by train. On May 22 they reached Montreal and were entertained by the civic authorities. It is reported that they leave New York for Europe on June 9.

Duchess of Bedford's Latest Plans

ACCORDING to the *Daily Express* of May 22, the Duchess of Bedford, the distinguished private owner, will probably be a passenger in the Fokker monoplane, "Princess Xenia," in which Capt. C. D. Barnard proposes to fly to India and back within a week. The start is scheduled for June 1, and the stages will each be 1,200 miles on an overland route, via Sofia, Aleppo, Bushire and Karachi.

Italian Service Flight

SIGNOR MUSSOLINI has approved of the proposed Italian service flight of sixty machines in the Western Mediterranean. General de Pinedo will be in supreme command, and among the intended passengers are Signor Balbo, Under-Secretary for Air, also British, American and French Air Attachés. The expedition leaves Orbetello on May 25 or 26 and the distance to be covered is 1,750 miles.

Italian Arctic Flight

GENERAL NOBILE'S airship expedition in the "Italia," returned to King's Bay, Spitzbergen, on May 18, at the conclusion of the first successful flight over the Polar Region. About 2,500 miles were covered in 67 hours' flying in unfavourable weather. Apparently Nicholas II Land was not sighted by the expedition, and the reason for this is awaited with much interest. Capt. R. Amundsen is stated to have been surprised at this, and said he had personally visited Nicholas II Land on his expedition in the "Maud."

The Arctic Airmen

CAPT. WILKINS and Lieut. Eielson, the Arctic airmen, reached Bergen on May 22 at 4 a.m., and in spite of the time there was a large crowd to greet them. In the evening they were the guests of King Haakon and the Crown Prince at Gamlehougen, a State mansion.

Zeppelin Flight to England

IT is possible that when the latest German Zeppelin, LZ 127, is ready shortly it will visit England during its trial flights. Cardington may probably be used by it, either for mooring to the tower or for hangar accommodation. This ship is being constructed at Friedrichshafen under the direction of Dr. Eckener and is equipped with Maybach engines. Official permission has been granted its flight to this country.

New U.S. Air Service

NATIONAL AIRWAYS INC. is to inaugurate, on June 1, a daily air service between Richmond, Va., Norfolk, Washington, and New York. Seaplanes will be used between Norfolk and Washington, and week-end trips to Virginia Beach are also being planned. Colonial Western Airways, Inc., are contractors for another new air mail route, also opening on June 1. This will be between Albany and Buffalo, with a connection at Cleveland for the New York-San Francisco route.

Col. Lindbergh

IT is stated that Col. C. Lindbergh has accepted the chairmanship of the Technical Committee of the Air Transport Company.

Air Mail Rates Reduced

PRESIDENT COOLIDGE has signed a Bill halving the air mail postage rates in America.

Twenty Years Ago!

Extract from "The Auto." (Precursor of "Flight"), May 23, 1908.

"*The Wright Flights—An Eye-Witness at Last.*—After a long period of dim confusion it really seems as if a little clear light has at last been thrown upon the actual doings of the Wright Brothers, for which characteristic enterprise our contemporary, the *Daily Mail*, dispatched a special correspondent to the front, whose subsequent letters to that paper have borne the impress of an eye-witness's story. . . . Precisely what the *Daily Mail* correspondent saw on the first day was a flight lasting 75 secs. in the morning, and another flight lasting 160 secs., which commenced at noon. This latter flight is remarkable on account of the fact that both the Brothers Wright were seated in the machine. The next day another flight under similar conditions, and lasting a similar time, took place, and was followed by a one-man flight over a distance estimated at about 4 miles, but untimed. Then came the final effort in the evening, undertaken by Mr. Wilbur Wright alone, which lasted 7 mins. 40 secs., and terminated in the smashing up of the machine on a sand dune. The distance accomplished prior to the catastrophe was estimated at from 6 to 8 miles, and the cause of the disaster was due to the aviator altering the deflector plane in the wrong direction, and thereby bringing the machine crashing down to earth instead of rising gracefully over the hillock as was intended."

THE ROYAL AIR FORCE

London Gazette, May 15, 1928.

General Duties Branch

Pilot Officer G. R. Weighill is promoted to rank of Flying Officer (April 10); W. G. L. Montagu-Douglas-Scott is granted short-service commn. as Flt.-Lieut. for three years on active list (May 1). The following Flying Officers are transferred to Reserve :—J. R. Pocock, Class A (May 14); C. R. Troup, Class C (May 7).

The following resign their short-service commns. :—Flying Officer (Hon. Flt.-Lieut.) W. B. O. Fox (May 4); Flying Officer L. A. Walsh (May 16).

Stores Branch

Pilot Officer J. E. Welman is promoted to rank of Flying Officer (April 10).

Accountant Branch

Pilot Officer on probation H. C. Bakes is confirmed in rank and promoted to rank of flying officer (Dec. 4, 1927).

Medical Branch

The folowing are granted permanent commns. in the ranks stated (May 16) :—Flt.-Lieut. F. B. C. L. B. Crawford, M.B.; Flt.-Lieut. R. G. Freeman. Flt.-Lieut. T. Sheehan relinquishes his temp. commn. on completion of service, and is permitted to retain his rank (April 29). (Substituted for *Gazette* May 8.)

Memorandum

The permission granted to Sec. Lieut. H. K. Kelly to retain rank is withdrawn on his enlistment in ranks of the Army (March 24).

RESERVE OF AIR FORCE OFFICERS

General Duties Branch

The following are granted commns. in Class A.A. (ii) as Pilot Officers on probation :—G. R. De Havilland (April 30); H. D. Hinde, E. P. Swallow (May 2).

Flying Officer H. L. Taylor relinquishes his commn. on completion of service (Dec. 2, 1927).

AUXILIARY AIR FORCE

General Duties Branch

No. 602 City of Glasgow (Bombing) Squadron.—The following to be Pilot Officer :—R. Faulds (April 5).

ROYAL AIR FORCE INTELLIGENCE

Appointments.—The following appointments in the Royal Air Force are notified :—

Flying Officers : R. A. Whyte, to R.A.F. Practice Camp, North Coates Fitties, 14.4.28. C. J. Stone, to R.A.F. Practice Camp, Weston Zoyland, 29.3.28. A. E. Haes, to R.A.F. Practice Camp, Weston Zoyland, 13.4.28. I. W. C. Mackenzie, to R.A.F. Practice Camp, Sutton Bridge, 14.4.28. C. H. Roberts, to R.A.F. Practice Camp, Sutton Bridge, 29.3.28. A. W. H. Nelson, to R.A.F. Practice Camp, North Coates Fitties, 29.3.28. N. Liddall, to R.A.F. Depot, Uxbridge, 12.4.28. F. G. S. Wilson, to R.A.F. Depot, Uxbridge, 3.3.28. D. Robinson, to No. 24 Sqdn., Northolt, 1.5.28.

Flying Officers : F. Porter, to R.A.F. Depot, Uxbridge, 20.4.28. L. K. Barnes to R.A.F. Base, Calshot, 8.5.28.

Flying Officers : J. R. Pocock, to R.A.F. Depot, Uxbridge, 30.4.28. H. A. Howes, to No. 1 Flying Training Sch., Netheravon, 24.4.28. A. F. Adams, D.F.C., to R.A.F. Depot, Uxbridge, 15.4.28. J. W. New, to R.A.F. Depot, Uxbridge, 12.4.28. M. A. Platts, to R.A.F. Depot, Middle East, 10.4.28. F. J. Knowler, to No. 3 Stores Depot, Milton, 23.5.28. R. H. Holmes to No. 20 Sqdn., India, 4.4.28. S. H. C. Gray, to Aircraft Depot, India, instead of to No. 20 Sqdn., as previously notified, 28.2.28. E. F. Wain, to Aircraft Depot, India, instead of to No. 5 Sqdn. as previously notified, 28.2.28. K. C. Netherton to Aircraft Depot, India, instead of to No. 31 Sqdn., as previously notified, 28.2.28. W. Anderson to No. 2 Flying Training Sch., Digby, 4.5.28. Hon. Flt.-Lt. F. P. Smythies to R.A.F. Base, Gosport, 14.5.28. J. S. Phillips, to No. 10 Sqdn., Upper Heyford, 28.4.28. G. V. T. Thomson, to R.A.F. Base, Gosport, 27.4.28.

Pilot Officers : J. Barton, to No. 7 Sqdn., Worthy Down, 21.4.28. E. L. Johnstone, to R.A.F. Depot, Uxbridge, on appointment to a Short Service Commn., 19.4.28. M. N. Oxford, to R.A.F. Depot, Uxbridge, on appointment to a Short Service Commn., 20.4.28.

Pilot Officers : G. H. G. S. Jenkins to Aircraft Depot, India, 28.4.28. E. C. T. Edwards, to No. 3 Flying Training Sch., Grantham, on appointment to a Permanent Commn., 30.4.28.

Accountant Branch.

Flight Lieutenant : J. S. Griffiths, to Station H.Q., Hinaidi, 6.4.28.
Flight Lieutenant R. H. Cleverly, to R.A.F. Station, Hendon, 8.5.28.
Flying Officer H. Crowther, to No. 504 Sqdn., Hucknall, 21.5.28.

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IN PARLIAMENT

All-Metal Machines

SIR SAMUEL HOARE, on May 9, in reply to Mr. Day, said the folllowing six types of all-metal aircraft will definitely be available by the end of this year: Siskin, Fairey III.F, Wapiti, Atlas, Sidestrand and Virginia. In addition, four other types may possibly be available, but the details have not yet been settled. The general policy of the Department was to push on with the development of all-metal machines. Generally speaking, the machines are being fitted with the slotted wing device.

Royal Air Force Machines

SIR PHILIP SASSOON, on May 15, in reply to Capt. Garro-Jones said there were 23 squadrons of the Royal Air Force and Auxiliary Air Force at present equipped with machines designed before the end of 1918, but certain of these squadrons were already in process of being re-equipped, and the number would be reduced to 15 by the end of the current year. Only 10 of the 23 are equipped with Bristol Fighters, to which particular type the Member referred in his questions on the 9th instant. He must make it clear that, although the types with which these squadrons are equipped were designed during the war period, they had since undergone continuous development and improvement as the result of Service experience gained from their use, and were in many respects, quite different machines.

Slot Apparatus

ON May 16, in reply to Capt. Garro-Jones and others, Sir Samuel Hoare said that 80 Bristol Fighter machines have already been fitted with slot apparatus, and aircraft of this type are being modified to take the slot at the rate of six machines per week. Further, a first delivery has been made of eight machines of another type with slots incorporated in the design, and contracts are being placed for the fitting of this device to two more types of aircraft. He thought they would be able to fit it to all machines. There may be one or two exceptions, but he hoped that practically all machines will be fitted with it. So far as they could see at present, the slot did not interfere with the performance of the machine.

R.A.F. Casualties

SIR S. HOARE, in reply to Sir W. de Freece, said the number of deaths, as a result of flying accidents during the period named was : R.A.F. personnel 26; Navy, 3; Army, 2. In addition, one Royal Air Force pilot was shot down in action.

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PERSONALS

Married

FLIGHT-LIEUT. HERBERT LEONARD ROUGH, R.A.F., eldest son of Mr. E. G. Rough and the late Mrs. Rough, of Victoria, British Columbia, was married on May 7, at Maidenhead, Berks, to EDITH MARGARET, only daughter of Mr. and Mrs. G. R. DAVIS, of Altwood Bailey, Berks.

To be Married

The engagement is announced, and the marriage will take place in September, of the REV. MACKENZIE J. ELAND, rector of Finningley, Doncaster, late R.A.F., youngest son of the Rev. R. J. Eland, of Torquay, and the late Mrs. A. H Eland, of Perth, and JOAN MARY, only child of the late CAPT. D. J. QUINLAN, Army Remounts, and Mrs. Quinlan, of 83B, Lexham Gardens, W. 8.

The engagement is announced between FLIGHT-LIEUT. FINDLAY WILLARD SINCLAIR, D.F.C., R.A.F., youngest son of Mr. and Mrs. F. D. Sinclair, of Calgary, Alberta, Canada, and DORA, only daughter of Mr. and Mrs. WASHINGTON JEWELL, of Bulland, Hadley Grove, Barnet, and Wiveliscombe, Somerset.

The marriage arranged between FLIGHT-LIEUT. HUGH S. P. WALMSLEY, M.C., D.F.C., R.A.F., and MISS AUDREY M. PIM, will take place at Sleaford at two o'clock on June 1.

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PUBLICATIONS RECEIVED

Results of Observations on the Direction and Velocity of the Upper Air Current over the South Indian Ocean. By A. Walter, F.R.A.S. Geophysical Memoirs No. 39: Meteorological Office. H.M. Stationery Office, Kingsway, London, W.C.2. Price 3s. net.

The Air Pilot Monthly Supplement. No. 41. *March,* 1928. Air Ministry, Kingsway, London, W.C.2.

Royal Air Force Rifle Association Rules and Programme, 1928. Royal Air Force Rifle Association, R.A.F. Cadet College, Cranwell, Lincs.

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AERONAUTICAL PATENT SPECIFICATIONS

(*Abbreviations* : Cyl. = cylinder; i.c. = internal combustion; m. = motor. The numbers in brackets are those under which the Specifications will be printed and abridged, etc.)

APPLIED FOR IN 1927

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2,210. R. M. WOOD. Planes of aircraft. (289,517.)
4,823. J. BARROS. Stall detector and alarm for use on aeroplanes. (289,589.)
12,008. S. E. SAUNDERS and H. KNOWLER. Aircraft wing-rib construction. (289,640.)
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